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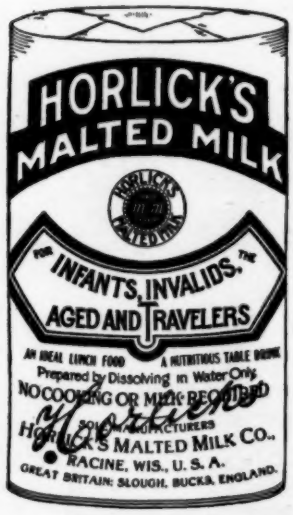
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General Scientific

THE ATTITUDE AND RESPONSIBILITIES OF THE PHYSICIAN IN THE SO-CALLED BIRTH CONTROL MOVEMENT.*

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There are many important and pertinent medical topics of the day of a popular and community interest, in which the opinions of physician and layman must be correlated and the view point of each judged by the other with patience and understanding. It is only by such united endeavors that questions of public policy and importance of a medical nature can be properly adapted to meet the desired ends. Among the questions of this kind we find that the movement popularly known as "birth control" occupies at the present time an important place in the public interest.

"Contraception," "birth control," and "limitation of offspring," are terms that of late have been very much on the public tongue, due largely to the newspaper and other notoriety given to that particular class of social reformers, who believe that a widespread dissemination of contraceptive knowledge will bring about a millenial condition in which poverty, vice, crime, and numerous other disagreeable attributes of a modern civilization, will be immediately eliminated and joy will reign supreme in every household which is not burdened with a large number of children. It is safe to say, however, that this Utopian dream will not come within the realm of possibility or probability by the adoption of any such means as those advocated by the "birth control" propagandists, for they fail primarily to take into consideration the fact that the question of conception is one that cannot be regulated by rule of thumb in the fashion which they so glibly publish. There are many underlying factors, physiological, biological, economic, moral, legal, etc., which must be taken into consideration and carefully weighed in the balance against the problematical advantages of any widespread propaganda of artificial family limitation. Let us start with the assumption that a family of moderate size is the ultimate goal to be attained. We will forego all mention of what moderate size means, except that possibly it refers to the number of children a mother can comfortably raise and a father efficiently support. If this question was put to the average mother she would cry, "stop," immediately after the birth of the first child, depending somewhat, of course, on her own physical ability to bear children and the care given to her by her physician. The trials and troubles of the lying-in chamber are soon forgotten, however, but the same reply will be made after the birth of the second, third, or subsequent child. Perhaps the mother is justified in her expressions, but as a general rule the average pregnancy and labor at the present day, in a healthy mother can be made fairly comfortable. As I shall show later on, the small family with one or two children is insufficient for the demands made by Nature and we must accept her laws, harsh as they may apparently be in many cases. The question of birth limitation has been restricted, however, to apply more particularly to the poorer families, where the addition of every new and hungry maw may and often does mean less care and food for the others, more work for the already overworked mother, less to put aside for the proverbial rainy day. It is this class of large families that has aroused the sympathies and called forth assistance of many worthy, well-meaning, but, let us be charitable, ill-informed persons. Birth control leagues, national and international in scope, have been formed to give their aid in settling this question. They seem to believe that the most potent factor in their success consists in the repeal of certain legal restrictions to the disseminaiton of contraceptive knowledge. Enthusiastic members of these self-constituted reform organizations have even risked jail sentences in order to spread their light and learning among the "ignorant." They justify their activities in part by the oft-repeated assertion that as the rich know how to prevent large families, the poor should be accorded an equal privilege. All this is very plausible and no wonder the unthinking have been misled in giving their support to such propaganda. Let us inquire, however, whether all this effort is worth while and whether it will bring about a cure of the evils which are claimed to attend an unrestricted and unrestrained birth rate.

This brings me to the point of my paper, namely, that the physician as such has certain responsibilities to the

*Read at a meeting of the Society of Medical Jurisprudence, New York, March 12, 1917.

race, to the community, to the family, and to the individual, based on the knowledge he possesses and his contact with all classes of the population. It is the physician also who must sound a warning cry against false teaching based on wrong premises and lack of understanding. He must not cast aside the problem as undeserving of his time and attention but should endeavor by a firm judgment of the reformers, and a sympathetic attitude towards mothers, to help bring about a settlement of this widespread agitation. In physicians as a class, sympathy is a quality that is developed by their calling and many may have probably lent their aid to this propaganda of birth control without realizing the import and significance of their action.

To begin with, we might inquire as to the cause of this widespread propaganda which has invaded our own land after its development and spread through several European countries. "Is this movement to be ascribed to an honest intent to better the world, is it another expression of the spread of feministic doctrines, is it demanded by scientific investigators, or is it merely another instance of one of those hysterical waves with which our civilization is so frequently assailed?"* Every effort to better the individual and the race in a physical and moral sense should obtain the full support of the medical profession and it is this support which calls forth the responsibilities referred to, but we must inquire closely whether the "birth control" movement can be justifiably included in this class. The desirability of limiting the size of the family, or viewed in a less charitable light, sexual intercourse without the natural and often times annoying consequences of conception, has formed a subject for discussion for layman, priest and physician for centuries, only to find renewed life in the Malthusians of a few generations ago, who seized upon the name of an English economist, Thomas R. Malthus (1766-1834), as their patron saint. This gentleman published a book in 1826 in which he maintained that the population of a country unchecked increased in a geometrical ratio while the food supply can be made to increase at furthest only in an arithmetical ratio. The checks upon such increase he resolved into vice, misery, moral or prudential restraint, but I do not believe that artificial methods of preventing conception entered into his schemes. Now the relation of food production to increase of population is a very complex problem which, however, undoubtedly depends at the present time on an abnormal increase in the number of consumers as compared with the producers of food, and to my mind has nothing whatever to do with the question of the size of the family. Nevertheless the argument sounds well and has been thoroughly manipulated to suit the ideas of the modern birth control propagandists: in fact, the law is to be appealed to in order to attain the desired end.

After more or less extended debate in England, Germany, Holland and other countries, the birth control movement has spread to this country and has been accompanied by the usual hysterical enthusiasm which is so characteristc of our national life. The standard once raised, reformers have rushed to support the same and their activities are already well known. At this point we might stop to inquire whether such a widespread propaganda of birth control is called for by the conditions presented among our people. The fact that certain families, particularly among the poorer classes, are blessed with a correspondingly larger number of children than those who are better off in the world's goods, has been taken as a text for a sermon in which the biblical instruction "go forth and multiply" is sought to be negatived. In addition we are told that "quality" and not "quantity" should count in the building up of a family, and while this desideratum is not to be denied, the question is how can we bring about such an ideal condition. Shall it be by giving license to a married couple by providing them with the knowledge of methods, usually doubtful, that will prevent conception, or shall it be by teaching them moderation in this as well as in the exercise of their other physical functions? There is little hope, however, that complete or temporary sexual continence will ever be attained, for the expression of the natural sexual impulse in normal individuals, is one that cannot be curbed by any laws that man may make. It is a question which every individual is a law unto himself or herself and any artificial interference with the natural expression of this important bodily function will sooner or later result in disaster, both to the individual and to the race.

Let us inquire a little more closely into the methods which have been advocated for the purpose of rendering futile or negative the sexual act. Our good friends who believe in the birth control movement think they can bring about an ideal marital relationship in which conception will result only from deliberate and planned effort. If they were better acquainted with the physiology and psychology of this process they would realize that this is practically impossible of attainment. Conception in all but a few instances must be regarded as an accident and we really know very little about the time when it takes place. We do know that it often results notwithstanding apparently insurmountable obstacles, and only those methods of avoiding it can be regarded as successful which actually prevent contact between the male and female elements. It is quite obvious, therefore, that only a few contraceptive measures are possible among which continence, partial or complete, plays an important rôle. Nearly all the other methods which have been described in the pamphlets circulated by the propagandists associated with the birth control movement, if regarded from a strictly medical point of view, can be truthfully labeled harmful. I do not care to take it upon myself to discuss in detail before a lay audience the measures which have thus been brought to the attention of women, usually ignorant of their potential harmfulness. Any medical man who will take the trouble to investigate this literature must be convinced of the general uselessness and filthy character of most of the methods advocated for preventing conception. Antiseptics, patent medicines of various kinds and a variety of pessaries and other appliances are indiscriminately proposed for the purpose, and in certain instances the inability of the husband to detect the deception is also urged in favor of its adoption. Aside from their specific local danger, the effect on the general morality of a married couple also deserves comment. We are told, moreover, that married people need not have children until they are ready for them. If such an important question could be decided would, in the majority of cases, a woman agree voluntarily that such a time was ever at hand? The maternal instinct is one that is very strongly developed in most women and how often do we meet with intense disappointment, where, after a few years of married life, no issue has resulted. Inquiry in such cases often elicits the admission that methods for preventing conception were employed, that children were not desired in the early years of married life. We find this frequently demonstrated in women who are approaching the thirtieth year of their life, who may have

*Birth Control, Geo. W. Kosmak, *Medical Record*, February 17, 1917.

married after an active social or business career at the age of 25 or 26, and then after a period of several years' sterility, the desire for offspring becomes paramount, only to be met with disappointment and failure. To my mind, if such cases were left to nature the fact of their sterility would be known at an earlier period and appropriate measures might be taken to correct the same. If the incidence of a possible pregnancy could be left to nature much less trouble and distress in the lives of many people would be the result.

There is another class of cases which must be considered in this connection, and that is one in which a number of children have been born and in consequence of economic or other factors no further offspring is desired. Every physician has no doubt been appealed to by his patients to prevent any further accidents after the birth of one, two or possibly three children. But can he conscientiously agree to such proposals if there are no other factors to be considered and what would happen if his guaranteed advice fails? Can he be held responsible for the non-success of his remedies and must he consent to an abortion in cases of failure? One might well inquire at this point what would be the population of any country amount to after the lapse of a century if the average family included only one or two children. Unfortunately the accidents of pregnancy or perhaps other diseases may prevent further conceptions in a given family and it is only by the introduction of new blood from families that can spare the same that the progress of our population in numbers must be looked for. It is well enough to talk about small families and enlarge on the element of "quality" instead of "quantity," but we must remember that the accidents of life take away a large proportion of individuals who never reach maturity and to whom the power of procreation is never given.

Moreover, those classes of our social system who are placed in a certain position by wealth or mental attainments, require for their upkeep and regeneration the influx of individuals from the strata which are ordinarily regarded as of a lower plane. If this striving for better things was not present among the so-called lower classes, the world, literally speaking, would soon come to an end. I am led here to make a very broad statement, which I have repeated elsewhere and which may be most obnoxious to those whom I would respectfully class as my opponents, but I sincerely believe that it is necessary for the general welfare and the maintenance of an economic balance that we have a class of the population that shall be characterized by "quantity" rather than by "quality." In other words, we need the "hewers of wood and the drawers of water," and I can only repeat the question that I have already proposed to our good friends who believe in small families, that if the "quantity" factor in our population were diminished as the result of their efforts, would they be willing to perform certain laborious tasks themselves which they now relegate to their supposed inferiors. Might I ask whether the estimable lady who considered it an honor to be arrested as a martyr to the principles advocated by Mrs. Sänger, would be willing to dispose of her own garbage at the river front rather than have one of the "quantity" delegated to this task for her? I again repeat that we need the element of "quantity" in the make-up of the world's population, for it is from this "quantity" element that the "quality" is obtained.

The claim is constantly being made that the knowledge regarding the limitation of offspring as believed to be practised among the well-to-do should likewise be afforded to the poor. Is it taken into consideration, however, that other factors may determine the numerical disproportion in the children of these classes? I cannot with propriety discuss before a non-medical audience the psychology of cohabitation as practised among the poor and the well-to-do, but in my association for a considerable number of years with the population served by the Lying-in Hospital I am fully convinced that methods of contraception such as have been publicly taught by members of the birth control leagues are of no avail, as they cannot be made use of in an intelligent manner. Unfortunately, in all these teachings the burden of proof is always placed upon the wife and insufficient attention is extended to the husband. Personally I cannot understand why women in particular, who are interested in extending the "great light" to their poorer sisters, should fail to take into account the husband as a factor in the situation, and I can see nothing more than the cultivation of a spirit of license, if the adoption of the advocated measures were generally possible.

Let us next take up the question of the prevention of conception in families where disease on the part of the father or mother seems to show the necessity for avoiding further pregnancies. As physicians we must acknowledge such necessity in cases of tuberculosis, heart disease, venereal infections, and other constitutional and mental disturbances. This contention is admitted and does not require further discussion. Physicians are given full power to deal with this class of cases as they think necessary, but why should this admission be made an argument for complete abolition of restrictions that are now placed upon the public dissemination of contraceptive measures? Women afflicted with advanced cardiac disease must not only be restricted as to their procreative faculties, but the sexual act itself is a source of danger in such cases. Similar instances might be cited to include other mental and physical diseases, but why should this serve as an argument in that larger class where no physical or mental contraindications to pregnancy exist and to whom such advice is to be given that they may indulge freely the exercises of their passions without the consequent responsibility. The claim is often brought forward that a large number of abortions would not be done if a better understanding of birth control methods were prevalent among our people. I desire to ask your close attention to this statement. I believe that if statistics could be gathered from the so-called professional abortionists, it would be found that their clientele is ordinarily limited to women who are unmarried or who have no desire for children, and that only a small proportion of cases comes from mothers with families. Is it fair, therefore, to employ this as an argument for the more widespread adoption of birth control information? It is also claimed that the bearing of three or four children is about all that the average woman can stand, although it must be a matter of common experience among all physicians that many women who have but one child are more seriously damaged in their bodies than many who have given birth to a half dozen or more children. We also find that with the advances in the obstetric art and the proper care of the patient before and after labor, that the complications attending childbirth are greatly diminished. The growth of maternity hospitals and the constantly increasing number of women who look for expert obstetrical care has had its reward in the decreased mortality and morbidity of childbed. The number of children which any woman can bear is entirely a question of individuality in so far as the medical aspects of this question are concerned. Un-

fortunately, the care of the pregnant woman has not been given a sufficeit amount of thought and attention by the medical profession as a whole. It is a class of work that the average physician may do as a matter of expedient or necessity, but his recognition of the fact that the care of pregnant woman constitutes one of the most important branches of the practice of medicine will soon accomplish a great deal in overcoming the fear in the minds of so many women as regards childbirth. The claim has often been made by birth control advocates that the dissemination of contraceptive measures has resulted in a diminished mortality and morbidity rate in certain countries, among which Holland is always held forth as a shining example. I will not weary you with a review of the statistical information which has been adduced, but I would call your attention to certain facts in judging the same. Is the resulting improvement which has been referred to the result of the adoption of birth control methods, or does it follow the better care which has been developed during the past few decades for the woman who is pregnant, for her confinement under circumstances that shall cause the least wear and tear on her organism and, as relates to the offspring, the results of the various activities which have made for better babies, includlng improved housing conditions, a better milk supply, cleanliness and similar factors? We can leave it to the health authorities, the social workers and physicians to give an answer to this question.

We must also bear in mind that social conditions in Holland and the United States vary widely, their population is practically homogeneous, ours is mixed, theirs is comparatively small, ours is enormous. The control of measures such as those advocated is possible in a more or less paternalistic government, it cannot be carried out in a democracy, and, finally, the time during which the Dutch Malthusians have exercised their functions extends over a period of only about twenty-five years. Let us consider what a century or more of birth restriction would bring forth in its results on the birth rate of Holland.

In this connection we may give a moment's attention to certain brief statistics gathered nearer home. If we examine the vital statistics of the State of New York for the years 1906-1915, we find that the infant mortality in 1906 was 148 per 1,000 births, and that during the succeeding ten years there was a steady decline in the mortality among infants until it was reduced to 99 per 1,000 in 1915. During this same period the number of births had increased from approximately 183,000 to 243,000 and the number of deaths at all ages from 141,000 to 146,000. In other words, the rates from 1,000 population of births and deaths in New York State were in 1906 21.8 births and 16.8 deaths, whereas in 1915 the births were 24 and the deaths 14.5 per 1,000 population. This most favorable condition in our own State is deserving of comment, and to what can we attribute this change? Is it brought about by decrease in the number of children in the individual family as the result of contraceptive knowledge or can it be more sensibly and sanely ascribed to the factors already referred to in the previous paragraph? I do not believe that even the most enthusiastic advocates of birth control methods can claim that in New York State alone during the last decade their efforts have produced such a successful issue.

In addition to the purely medical aspects of the birth control propaganda, there are others of an economic and a moral nature that might well be taken up in this connection. The economic factors cannot be safely described by a physician, as his opinion is apt to be guided by the impressions of his immediate environment and he is likely to be misled. Every physician sympathizes with those families among the poorer class who find themselves engaged in the constant struggle to make both ends meet and to whom the frequently annual visit of the stork is not an event of joy. Yet the latter is not a condition that holds universally in every poor family, and we frequently find that only one or two children will grace the households of the poor. Can we hope to limit the size of the larger families by the teaching of contraceptive knowledge as advocated? As I have already stated, I do not believe that we can and the so-called "birth control" clinics which have been established for the purpose of reaching this particular class of people must be regarded as a source of danger and a menace to the community. The privileges which they propose to extend will soon become abused and the supposedly "reliable" information will be distributed broadcast without question as to its deleterious physical, moral and mental effect. In but few instances apparently have proper medical arrangements been made to determine the necessity or the safety of their employment.

The moral aspects of the question involved in the birth control propaganda do not usually come within the province of the physician. Every physician, however, has undoubtedly observed the moral dangers that attend the continuous practice of contraceptive measures. We also know, and this statement may appear a very harsh one, that fear of conception has been an important factor in the virtue of many unmarried girls, and that many boys are likewise kept straight by this means. Will not the indiscriminate distribution of birth control literature that is certain to follow any relaxation of legal restrictions such as those proposed, lead to an increase of immorality that will be difficult to counteract? Moreover, the freedom with which this matter is now discussed by the press and the public must have an unfortunate effect on the morals of our young people. It is particularly important at the present time to keep such knowledge from our girls and boys, whose minds and bodies are not in a receptive frame for such information.

In connection with the moral aspects involved we may well direct our attention to the rather noteworthy support which has been given to the "birth control" propaganda by radical socialists and also the anarchists. Among these people we find rather elastic conceptions regarding the responsibilities involved in the marriage relation, and although their appreciation and support may not be desired by the reformers who are honest in their intentions towards the "birth control" propaganda, yet this unasked for support constitutes a serious factor which cannot be readily put aside. The anarchists have even taken it upon themselves to distribute "birth control" literature under the sanction of their officials without any discretion as to whom such literature will reach. Although this phase of the situation may appear exaggerated, nevertheless we must not lose sight of the extreme danger involved in the same.

I desire to refer only briefly to certain legal aspects of this question, such as the modification of certain restrictive features in the penal code of New York State, which, however, can be more effectively discussed by the well-qualified reader of a later paper. But I want to say that it is my belief, based on personal observations, that the restrictive laws which now prohibit the dissemination of contraceptive literature are a blessing to the community at large. The "Birth Con-

trol League of the United States" specifically declares in a prospectus that "to classify purely scientific information regarding human contraception as obscene, as our present laws do, is itself an act affording a most disgraceful example of intolerable indecency." One marvels how any well-balanced mind could have studied the subject and arrived at such a conclusion, for we find on examining the pamphlets which have received the stamp of authority by this self-constituted band of reformers, that they are a mixture of arrant nonsense, misinformation, false reports, and in addition, in some cases, seditious libels on the medical profession. These publications are not scientific and in most instances have been compiled by non-scientific persons, and if their circulation is to be in no way inhibited they may soon be found on every news-stand and in other public places. As we find numerous proprietary articles recommended within their pages, it is not improbable that the manufacturer of the former will soon make use of them in advertising his wares. Efforts to impress the public with their scientific character need hardly be dignified by further professional comment, and yet they are a source of such potential danger that as physicians we must lend our assistance in doing away with what is essentially indecent and obscene. Are we therefore as physicians morally justified and should our professional conscience permit us without comment or attempt at reproval to allow the indiscriminate dissemination of dangerous propagandist literature written largely by more or less incompetent individuals and in whose aid a valuable State law shall be practically emasculated? Shall we permit the prescribing of contraceptive measures and drugs, many of which are potentially dangerous, our homes, our firesides, and among our young people? guarded our legal rights as physicians against Christian scientists, osteopaths, chiropractors, naturopaths and others who have attempted to invade the field of medical practice by a short cut without sufficient preliminary training such as is considered essential for the equipment of every medical man? Will we not by mere acquiescence favor the establishment of another school of practice, the "contraceptionists," "birth controllers," or call it by any other more euphonious name, if as physicians we do not raise our voices against the propaganda which is spreading like a slimy monster into our homes, our firesides, and among our younge people? To all those physicians who have perhaps heedlessly lent their aid, a warning cry to stop and consider what it all means should be given. This must not be regarded as a matter of family limitation alone, it is a question whether one of the most sacred and important faculties with which man is endowed shall be governed by the teaching of a propaganda founded on untruth and misinformation. As to the possibility of family limitation with reason there may perhaps be little question, consciously or unconsciously, it is now and always has been practiced by married people, largely by one means, that of restraint. The claim can hardly be made that either party to a marriage is ignorant of this information. Circumstances may arise in an individual case, such as frequent childbirth with the possibility of a deleterious effect on the mother, or other factors, where there is need of contraceptive measures other than that referred to, and if such knowledge is required for sound medical measures, every physician is or should be prepared to deal with the problem much more safely and satisfactorily than a non-medical person, trained nurse, social worker or self-constituted reformer. The law as it now stands gives to the physician the necessary power. His interview with his patient is a privileged communication and will never be reviewed by a court of law. Another fact to be borne in mind is that the practice of the professional abortionists will be largely increased rather than diminished by the dissemination of birth control methods, as he or she will then have the means which will be readily seized upon to extend their practice among the clientele which has been accustomed to patronize them.

In conclusion, we may well ask what is to be done? What shall be the attitude of the medical profession in regard to this question? Shall we listen to the unrestrained harangue of the reformer who may have but little conception of the medical aspects involved and who does not realize the final result? Shall we lend our approval to the spirit of license which the development of such sentiments will naturally bring about? What shall we as physicians do? We know our duties and limitations and powers in this matter and we must exercise them as our individual consciences dictate, bearing in mind not only ourselves and our patients, but the relations of both to the community at large and to the race. We must study the circumstances carefully in each instance and after due inquiry give our consideration to only honest cases among married people. We must counsel these patients as the occasion demands and free at the same time their minds from the nauseating slush which now characterizes the subject and has probably contributed to their hysterical and false interpretation of the same. Numerous public expressions also show that we are evidently misinterpreted by the laity as to our attitude. I have already stated, and clearly I hope, that we cannot object to contraceptive measures in certain necessary cases and it is only to the unrestrained dissemination of so-called information regarding the prevention of conception by irresponsible and equally ignorant individuals, that we as physicians can and must object to, and likewise to any change in the law which would let down the bars to doubtful and irregular practices. In place of the measures advocated would it not be better to develop educational methods, either by individual or co-operative instruction, by which restraint can be taught (the husband primarily and the wife secondarily), by which license as now advocated will be superseded by moderation and common sense. Whatever other procedures may be necessary are now within the knowledge of the physician and can be satisfactorily employed by him when the occasion arises. The value of continence is not even referred to in most of the numerous pamphlets issued by the propagandists—"there need be no restrictions (to intercourse and), we shall inform you how to avoid the consequences," is their slogan. I desire to repeat my belief that education in a broad sense will contribute more to the solution of this problem than ill-advised legislative enactments and sensational propaganda.

Whether the medical profession can aid such an educational movement will depend upon its own efforts and its attitude towards a question which occupies the minds of a great many people who are sincere and honest in the conviction and belief that something ought to be done. As physicians we cannot afford to dismiss the matter as unworthy of our serious thought and attention, for its far-reaching consequences may in the course of time manifest their effects on our national welfare and existence. In the meanwhile the public is being surcharged with the hysterical outpourings of a false and erroneous propaganda. The problem is one that for its solution requires careful deliberation. It cannot be decided by measures that result from the pro-

mulgation of a sensationalistic campaign. Let us hope that finally truth and common sense will prevail in this discussion and that the public mind will resume a sane attitude towards the question, leaving its decision to those immediately concerned and helping them to solve the problem for themselves by natural rather than unnatural means.

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THE SOCIAL AND LEGAL ASPECTS OF THE BIRTH CONTROL PROPAGANDA.*

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As a supreme factor in bettering social conditions, we have been deluged, during the past few years, with verbal and literary outpourings advocating the prevention of conception. The practices advocated have been represented to put an effective curb on the transmission of disease and the propagation of mental defectives. Poverty will disappear under the benign workings of this system and the millenium will be upon us. Incidentally, working women have been told by educated but misguided reformers that they are fools to bring children into the world. They have been warned that their offspring fill the jails and hospitals; factories and mills; insane asylums and premature graves, and supply soldiers and sailors to fight battles for financiers and the ruling classes. From all these misfortunes they are advised that they would be saved by practicing the new doctrine of birth control. Let us see how new a doctrine it is. In the first book of the Bible, which is the source of all our laws and standards of living, there is an account of the conduct of the first recorded practitioner of contraception. In this terse narrative we are told "the thing which he did displeased the Lord! wherefore he slew him also."

The Romans practiced birth control, and, in course of time, there were no more Romans. Rome was destroyed by the immoral practices of her own people.

We art told that birth control is prevalent in France, Holland, Australia and other countries; also among the most substantial part of our own population. The armies of France and the soldiers of Australia in the present war are pointed to as an exemplification of the merits of birth control. But consider that armies are made up only of men who attain practical, physical perfection, and that they are not sent to face the enemy until they have been in training for periods of months, subject to the most rigid discipline and practicing the most severe principles of self control. Give France, or any other country, one hundred years of perfect peace, combined with the general practice of contraceptive methods, and her people will be no more able to withstand the aggression of restless neighbors than was Rome. Bear in mind also that if France had not practiced birth control there would have been more of that race to oppose their present antagonists. Bear in mind that the Germans, who have not practiced birth control, have given to the world the greatest illustration of military efficiency ever devised. The armies of Rome were at one time unconquerable, but Rome fell. Are we wiser than the Romans? Are we wiser than God?

Birth control is practiced in this country, but not by public sanction. Intelligent people view with alarm and anxiety for the country's future welfare the rapidly diminishing offspring of the more intelligent classes of the country's citizens. It is interesting to note that many women of this class are most active in the present propaganda, and in the effort to legalize the dissemination of information as to methods of birth control, the question naturally arises whether their interest in the matter is not a selfish one seeking to justify the practices which they have pursued by legalizing them and making them respectable rather than that they are so much interested in the welfare of the working classes who are the alleged beneficiaries of their efforts. A recent article by Rabbi Stephen Wise, descriptive of the wasteful lives of the women of New York's middle class who have no children and no home ties, and no useful purpose in life, is enlightening and foreshadows disaster if the woman of today does not quickly realize and return to her position and primary duty in society—the duty of motherhood and homemaker.

Years ago far-seeing citizens of this State and country sensed the beginning of this practice and, as a result, there were placed upon the statute books of most of the States and of the United States, laws prohibiting the sale or other distribution of articles or information for the prevention of conception. As a consequence, we have in the State of New York Section 1142 of the Penal Law which prohibits "the sale, loan, giving away of in any manner exhibiting, or offering to sell, loan or give away, or advertise or offer for sale, loan or distribution any instrument or article or any recipe, drug or medicine for the prevention of conception or for causing unlawful abortion; or purporting to be for the prevention of conception or for causing unlawful abortion." The Federal Laws prohibit the transmission of such articles or information by mail or in interstate commerce. Certain people are now advocating the repeal of State laws by an amendment to Section 1141 of the Penal Law which prohibits the sale or other distribution of any obscene, lewd, lascivious, indecent, filthy or disgusting book or other publication, and in pursuance thereof have introduced a bill seeking to except from the provisions of said section "a book, magazine, pamphlet, newspaper or other printed, typewritten matter which mentions, discusses or recommends, or gives information concerning the prevention of conception or methods or means for the prevention of conception, or gives information as to where, how or of whom advice concerning said articles, drugs or instruments for the prevention of conception can be obtained"; and further providing that "An article is not of indecent or immoral use or purpose within the meaning of this Article because it is adapted or designed, is advertised or represented to be adapted or designed for the prevention of conception." They also seek to exclude from the provisions of Section 1142 of the Penal Law, which is entitled generally as "Indecent Articles," the provision against the sale or distribution of instruments, articles or recipes, drugs or medicines for the prevention of conception, or purporting to be for the prevention of conception. A hearing was had on these bills before the Assembly Committee on Codes on March 6th, 1917, and reports indicate that these bills will not be reported by that Committee. In other words, the proposition to spread this prohibited information broadcast by legal sanction, and to make these articles common objects of traffic is so monstrous and so inimical to the public welfare, that the mere hearing in connection with them is looked upon as an insult to the intelligence of the Legislative Committee. There is a section of the Penal Law—No. 1145—which provides that "An article or instrument used or applied by physicians lawfully practicing, or by their direction

*Read at a meeting of the Society of Medical Jurisprudence, New York, March 12, 1917.

or prescription, for the cure or prevention of disease, is not an article of indecent or immoral nature or use within this Article. The supplying of such articles to such physicians, or by their direction or prescription, is not an offence under this Article." In certain proceedings of late the courts have held that this Section creates an exception to Section 1142 of the Penal Law to the extent that it would permit physicians, lawfully practicing, in order to cure or prevent disease, to prescribe or apply the articles described in Section 1142 and otherwise prohibited. It is fundamental that where a defence, based on an exception to a general law is interposed in a prosecution, that it is requisite to show that the transaction upon which the prosecution is based was covered by the requirements of the exception. In other words, in order to defend the prosecution of the sale of an article for the prevention of conception, the courts should require the defendant to show that the article involved in the particular transaction was sold on the prescription or at the direction of a physician, lawfully practicing, to be used for the prevention or cure of disease. Otherwise the sale or other distribution of such article is undoubtedly illegal. Of course, such a restriction is not at all satisfactory to the people who would have unlimited dissemination of contraceptive articles and information; and there have been direct violations of the law on the theory that a great moral principle was involved. One of the advocates of this doctrine is reported to have expressed the belief that such articles should be sold in every five and ten cent store.

Aside from the unsuccessful effort to attack the legislative laws, which have been cited, the public discussion of a subject of this character is in itself harmful in that it makes a serious subject a matter of common and frivolous conversation and comment. Familiarity and light treatment of a subject quickly strips it of its serious aspect. Making this subject a topic of common conversation arouses in the thoughts of the young other matters in connection therewith which are very likely to lead to acts of impropriety and loose and harmful conduct. The basis of society and of our national life is the home, and the ideal home is one supported by the husband and conducted by the wife and mother. Without motherhood there is no binding feature in the home life and no continuity of the race.

The remedy to bring about a reduction in the number of mentally defective persons is not the teaching of a system which they would not apply but segregation. The remedy to prevent the transmission of tubercular and other diseases is not the practice advocated and unlimited indulgence, but the proper medical treatment and cure of the afflicted individual with self control and abstinence from weakening indulgence as a primary factor. The remedy for poverty and lack of the necessities of life is not the prevention of births but the proper distribution of population and the prevention of its congestion in certain sections of urban communities. This is a problem in itself and in order to make land available for living purposes and cultivation, it may be necessary to resort to some means the most practicable of which yet presented is the application of the so-called single tax. The remedy for minds warped and twisted so that they see in immoral practices a remedy for all human ills, is to divert such minds from brooding upon the unhealthy spots in life and turn them to a united effort for constructive rather than destructive activity. No progress to ameliorate home conditions can be or is ever made through merely scratching the surface, or seeking short cuts to a desired end. In order to bring about an improvement in the condition of those people whose station in life is the subject of sympathy, it is necessary to dig down to the root of the social evils which create such conditions.

It is not a popular thing to say, but it is a fact that many individuals are restrained from harming themselves and the community by indulging natural appetites through the application of restrictive legislation. Were there no restriction upon the dispensing of intoxicating liquor, we would have many more drunkards. Were it not for the drastic laws against the possession and distribution of narcotic drugs, the number of addicts in our midst, now all too great, would be much greater. Were it not for the laws prohibiting the sale of articles for the prevention of conception, the number of illicit and degrading sexual entanglements would be vastly increased. The sex instinct, or appetite, is the strongest in human nature, and where its over-indulgence results in so much harm, not alone to the individual but to society in general, it is criminal to advocate any measure which would make such indulgence a matter of common, everyday occurrence. The proponents of the repeal of the present laws argue, with every appearance of good faith, that the practices which they advocate would do away with the practice of criminal abortion, at present indulged in. When it is realized that no so-called contraceptive is a sure prevention of conception, but that the representations that it was such would result in greatly increased indulgence, it is apparent that there would be an immense increase in unwelcome motherhood, and a corresponding increase in the practice of abortion. The married women of this country, at the present time, may be divided into three classes: Those wholly occupied with the duties pertaining to home and family, those having nothing to do, and those who have the means and the will to undertake and occupy their time with some useful endeavor on behalf of their fellow beings. The widespread practice of those things which are offered by the birth control proponents would tend to transfer the first class into the condition of the second class with nothing offered these women as a substitute for the duties of motherhood which now occupy their time and preserve their womanhood and selfrespect. Consider the fraud also which it is thought to perpetrate upon the husband. The ambition of every right-thinking man is to marry and be the father of a family. When he marries the assumption is that the woman undertakes to share in these plans, but the birth control advocates aim to teach the woman preventive methods and have stated in print "The man will be unconscious that anything is used." The doctrine is to take everything and give nothing in return—to be a parasite, a fraud and a cheat, enjoying the pleasures of life and assuming no responsibilities. Practicing birth control and forgetting self control. When this theory is generally accepted human society will have descended to its lowest depths. The salvation of society, and the salvation of the country and of our national ideals rests with those who believe in humanity and in God and in the immutable law of nature that the abuse of any natural appetite leads to sure destruction.

Vaccines for Respiratory Diseases.

R. J. Rowlatte's report on 14 cases in the *Lancet* is encouraging, 10 of them proving satisfactory. The four refractory cases were inveterate, nasopharyngeal catarrhs previously treated surgically. In the aggregate of five microcatarrhalis infections, three were cured, one benefited and one unaffected; two pneumococcus cases were both cured, also one staphylococcus, and on of S. aureus; two of mixed straphylo- and streptococcus got well; two our of three streptococcic cases recovered, the third being unaffected.—(*Prog. Med.*, Sept., 1916.)

SOME INTERNAL SECRETIONS AND THE HEART.

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The Adrenal Glands and Their Secretions.

The attention of the profession seems to have been first called to the great importance of the adrenal glands in 1856, when Brown-Sequard[1] announced that anatomically and functionally they were closely related to the ganglionic nerve centers, and were essential to vital processes. Nine years later, Henle[2] found a peculiar characteristic of the glands, viz., that the medullary portion differed essentially from the cortical, in so far at least that it took on a permanently brown color after being immersed in a potassium bichromate solution, or Mueller's fluid.[3] Hence the term chromaffin, used to express its predilection or affinity for the salts of chromium.[4]

Later still, Oliver and Schaefer[5] discovered that the adrenal secretion stimulates the heart, while in 1903 Sajous[6], summarizing previous discoveries, announced that it played an important role in oxydation, metabolism, in the production of fever, and in establishing general immunity.

Meanwhile, in 1897, Abel[7] of Baltimore discovered the potent principle of the adrenal secretion, which came to be called epinephrin[8]. Derived from the chromaffin or medullary tissues, it activates the non-striated muscle substance through the sympathetic, causing relaxation of the muscle coats of the intestines and of the bronchi. Acting on the kidney, it causes diuresis, though in what way is not clear. Later, Brubaker[9] noted that it caused an accumulation of sugar in the blood.

According to Sajous, the secretion activates the heart in two ways: (1) by direct action on its muscular tissue, and (2) by stimulating the processes of oxydation and metabolism, through the influence of nerves originating at the cerebrospinal centers. His theory is that the secretion, passing out into the adrenal veins, enters the venous trunks, and so passes to a large extent through the right heart into the lungs. Reaching the air cells it absorbs oxygen and becomes a constituent of the hemoglobin and of the red blood corpuscles. These latter, after absorbing the now oxydized secretion, return it to the plasma in the form of droplets, the so-called blood platelets. It then becomes the oxydizing agent of the entire organism.

The channels through which the secretion reaches the cardiac substance are, according to Sajous, the Thebesian vessels, whose foramina or mouths exist on the surfaces of the auricles and ventricles. These minute orifices, seldom more than half a millimeter in diameter, are scattered somewhat irregularly about over the lining membranes of these chambers. They open into minute veins, which uniting form larger ones, and these venous networks, which connect with the larger peripheral veins by means of capillaries, and so with the coronary vessels, and ultimately with the four chambers of the heart. According to Langer[10], who has studied them closely, the foramina on the inner surfaces of the auricles are larger than those of the ventricles, which in fact are often difficult of detection, but are most conspicuous over the papillary muscles and in the neighborhood of the great vessels.

According to F. H. Pratt, of the Harvard Laboratory (*Am. Jour. of Phys.*, Vol. I, 1898, p. 86), these vessels carry into the substance of the heart from the ventricles sufficient nutriment to maintain long continued rhythmic contractions. They also carry nutriment from the auricles into the coronary sinus and the veins. The valves are imperfectly developed or are lacking.

The nutrition that reaches the heart through the Thebesian orifices or the coronary veins contributes to the relief of the heart in fibrillary contractions, and may explain how cardiac tissue survives for months or years, when the terminal arteries of the heart have been occluded.

According to Sajous, the right heart owes its functional activity mainly to adrenal secretion conveyed to it by the venae cavae. This secretion not only sustains cardiac activity but restores it in case of cardiac failure. Its power in this respect equals that of the arterial blood in the left heart. The adrenal secretion administered to animals in moderate amount augments the force of the cardiac contractions, and reduces the rate. Given in larger amounts, the contractions become more active, and may even be violent. As the amount of the secretion given is increased, oxydization processes become still more active. On the other hand, if the material is given in diminishing amounts, there is less adrenal secretion, and the oxydizing processes are correspondingly retarded.

Sajous summarizes his views on these functional activities of the heart as follows:

The nervous supply of the heart is derived from the sympathetic system. It is composed of two groups, the accelerator nerves and the moderator or inhibitory. The accelerators increase the rate of the heart, by causing dilatation of the arterioles, thus augmenting the volume of blood admitted to its muscular coats. The moderator or inhibitory nerves diminish the heart's rate, by causing contraction of the arterioles, thus reducing the amount of blood admitted into the muscular tissues. When there is further augmentation of the heart's power, as shown by a notable increase in the strength of the cardiac contractions, the result is due to an increase in the quantity of adrenal secretion. This traverses the heart on its way to the lungs.

The more usual view is that the central nervous system furnishes the heart with two sorts of nerve fibres. One of these, known as the inhibitory, reaches the heart through the medium of the vagus. Their activity will slow or even arrest the heart's action. Luciani calls the vagus the diastolic nerve of the heart, its stimulation causing dilatation of both auricle and ventricle. The second sort of fibres reaches the heart through the medium of the sympathetic system. They are known as accelerator fibres, and quicken the heart's action. The upper and lower branches of the vagus unite in the heart with the sympathetic network so as to form the cardiac plexus, filaments from the vagus, however, terminating in the sino-auricular node, i. e.,

[1]Brown-Sequard. Comptes Rendus de l'Acad. des Sciences, Vol. XLIII, p. 22, 1856.

[2]Henle. Zeitsch. f. Rat. Med., 24, s. 150, 1865.

[3]Mueller's Fluid is used in laboratory work to preserve and harden tissues for microscopic examination. It contains in addition to a solution of potassium bichromate, sodium sulphate.

[4]The word chromaffin is derived from the Latin chromium, the metal, and affinis having an affinity for. On the other hand, the word chromophil, which has been used so erroneously to express an affinity for the chromates, is derived from the Greek chroma, color, and phileo, I love, and means that histologically it has a predilection for various coloring reagents or dyes, such as are used in laboratories when preparing tissues for microscopic examination.

[5]Oliver and Schaefer. Jour. of Phys., 18, p. 230, 1895.

[6]Sajous. The Internal Secretions. 1st Ed., 1903.

[7]Abel. Bull. of the Johns Hopkins Hospital, July, 1897.

[8]Various other names have been given it, such as adrenalin, suprarenalin, adrenin, etc.

[9]Brubaker. Text-book of Phys., p. 504, 1916.

[10]Langer. Sitz. d. k. Akad. der Wiss., zu Wien, Band LXXXII, Abtheil. III. 1880

the remains of the sinus venosus. Both vagus and sympathetic fibres are efferent in character, but there are also afferent filaments, carrying sensations away from the heart. Some of these are stimulated at each beat of the heart. The cardiac plexus lies on the arch and ascending portions of the aorta, and from it the heart receives additional inhibitory and accelerator fibres.

The energy developed by the right heart is due to two factors (Sajous): (1) adrenal secretion carried to it by the inferior vena cava, and (2) the continuous action of the oxydizing substances in the coronary arterial blood upon the *myosinogen*, a globulin formed from certain granules[11] derived from the leucocytes. The adrenal secretion plus these granules enters the right auricle and the right ventricle in the blood of the vena cava.

The adrenal secretion acts on the muscular tissues directly, and, while causing the walls of these cavities to contract alternately, forces small quantities of the secretion to enter the walls of these cavities by means of the Thebesian foramina. This fluid eventually enters the interfibrillary spaces of Henle[12], i. e., the spaces about the bare muscle cells of the heart. The granules contained in the fluid are used by the cells to develop myosinogen.

The plasma in the coronary vessels and their terminals now contains an oxydizing substance called by Sajous *adrenoxidase*, and this causes contraction of the muscle cells. Adrenoxidase is an aggregate of the body's *oxydases*, and the material by means of which life may be controlled. It is the oxygen-laden matter of the adrenals which in turn is governed by the pituitary body.

The adrenal secretion and the granules, with the venous blood of the right ventricle, do not all enter the Thebesian foramina, however, but are carried on, for the most part, directly into the lungs with the venous blood of the right ventricle.

The mechanical energy of the left heart is derived from (1) the oxydizing substance of the arterial blood, which penetrates the muscular substance by the coronaries, and (2) by an additional supply of granules and perhaps of adrenal secretion, which find their way to the myocardium through the Thebesian channels. Sajous holds that the manner in which the contractile process is carried on in the left heart is similar to the way in which it is carried on in the right heart. He believes that the granules of the leucocytes are living units; that after mitgrating from the blood to the tissues they become the granules of tissue cells.

Absense or diminution of the secretion is a topic of very great importance. There is then a condition that has been called adrenal insufficiency (Sergent), or hypoadrenia (Sajous). Of this there are at least three varieties: (1) the acute form, associated with adrenal hemorrhage, (2) a chronic form that is comparatively frequent, and (3) terminal hypoadrenia, which is associated with the final stages of some long continued disease. The signs of adrenal insufficiency (hypoadrenia) are Sergent's white line[13], asthenia, sensitiveness to cold, hypotension, weak cardiac action and pulse, anorexia, anemia, slow metabolism, constipation, and psychasthenia.

Epinephrin injected intravenously promptly contracts the small arteries and capillaries, stimulates the heart and the cardio-inhibitory center, raises blood pressure, and blanches mucous membranes. And yet there are few drugs that cause a heart to stop more promptly, if an overdose is given or if a normal dose is injected too rapidly. This view is held by some of the best physiologists. Great caution should therefore be exercised in the intravenous injection of even normal doses of epinephrin. Indeed, Swale Vincent[14] found in experiments on animals that an amount that might be expected to produce nothing more than a mild rise of blood pressure very frequently proved fatal. Epinephrin given by the mouth is usually regarded as inert, because it is oxydized in the stomach and intestines.

In my experience, the most reliable form for internal administration is the dried gland, which I have used in my practice for many years. Armour's powdered suprarenal gland, in 1 to 3 grain doses three times a day, has been my mainstay in these cases.

Adrenal insufficiency has also been treated, and it is said with benefit, by mercury in small doses, also by a combination of the dried adrenal gland, gr. 2, thyroid extract, gr. 1, Blaud's pill, gr. 1, in capsules, three times a day; but digitalin and strychnin may also be required as an adjuvant, while the pituitary gland (posterior lobe) may also be added with profit, as in a case which I report later.

The activity of the suprarenals has been attributed to the presence of arsenic, that of the thyroid to iodin, and that of the pituitary to phosphates. The amount of iodin in thyroid extract is probably a rough measure of its usefulness.

The Pituitary and Its Secretion.

Delille[15] appears to have been the first to show that the pituitary gland raises depressed arterial tension and corrects arrhythmia. He found that it acted much like digitalis, both as a heart stimulant and as a diuretic, though in this latter respect it was inferior to digitalis. For sustained action he considered it preferable to epinephrin, the action of which is very brief. It may be used advantageously to supplement the action of the adrenals.

There is a vast difference in the characters of the anterior and posterior lobes. Removal of the anterior lobe has caused death, while removal of the posterior is not usually fatal. The pituitary body is essential to animal metabolism. The anterior lobe furnishes a secretion that stimulates the growth of the skeleton and promotes metabolism; the posterior lobe supplies one or more hormones that stimulate plain muscle, the secretory activity of several glands, and the production of glycogen. It also regulates the reproductive organs. According to Brubaker (*loc. cit.*), this lobe also regulates carbohydrate metabolism, while a deficiency of it leads to the development and accumulation of fat. In this latter respect it seems to differ from epinephrin. An excessive secretion of the anterior lobe leads to giantism and acromegalia, while a diminished secretion leads to defective growth and infantilism.

Klotz of Tuebingen (*Muench. Med. Woch.*, May 23, 1910), experimenting with it on animals and in the woman's wards of the university, found that its action took place in three minutes, and lasted as long as thirteen hours. He used in adults ampoules[16] containing each 1 c.c. of the liquid, 0.2 gram of the gland substance. He thinks there is no maximum dose, for no harm came to the heart from any amount of it given. He injected the dose into the muscular tissue.

Swale Vincent says that in injecting pituitrin saline

[11] Called by Sajous Beta granules.
[12] Henle. Stricker's Histology, p. 186, 1872.
[13] Sergent's line is made by stroking the abdomen with the finger nail or a pencil, when a white line, due to vaso-constriction, is produced. Paule Sergent, Soc. Med. des Hopitaux, 22 Avril, 1904.
[14] Swale Vincent. Internal Secretions, p. 183, 1912.
[15] Delille. L'Hypophysie et la Medication Hypophysaire Paris, 1909.
[16] Both Burroughs, Welcome & Co., and Parke, Davis & Co.

infusions should be used with the extract. In some of the ampoules manufactured the gland extract is suspended in the saline fluid.

The oral dosage of the dried gland is from ½ to 6 grains per dose.

Zueblin has been experimenting (*Med. Rec.*, March 3, 1917) with the extract pituitrin. He used it in doses of 1 c.c. (m. 15), with adrenalin 1 c.c. (m. 15), subcutaneously, and found the pulse made stronger, more regular, and less frequent.

The nervous or posterior portion of the lobe is used for purposes of medication. It contains medullary or chromaffin tissue, as does the adrenal gland. It stimulates the sympathetic nerves, causing marked constriction of vessels, especially those that supply the abdominal viscera, but it relaxes the smooth muscle fibres, and so is useful in bronchial asthma, where there is spasm of the muscles of the bronchi.

Briefly the posterior lobe causes increase of blood pressure, oxydation, metabolism and nutrition, so that its action is, as I have already said, very similar to that of the adrenals, but its exects are much more prolonged. This is very important from a therapeutic point of view, inasmuch as it continues the action of the adrenals, which is brief. With the adrenals it is in close relations as to functions, but according to Cannon[17] it is also similarly connected with the thyroid. Stimulation of the nerves of the suprarenals will provoke an electric reaction in the thyroid. In fact, the pituitary is not only connected by a direct nerve path with the thyroid, but with the parathyroids as well. Hence, therefore, the thyroid extract may be used to modify the action of the adrenal and pituitary secretions, at least so far as metabolism is concerned.

Recently I had a case that corresponded in symptoms with those attributed to adrenal insufficiency. A young unmarried lady of about thirty came under my observation in the summer of 1916. She was pale in color, frail, and suffered from general debility and nervous weakness. There was apparently no organic disease, but the pulse was extremely weak, though the rate was normal. Maximum systolic pressure, 90. Hemoglobin, 70. She was put on digitalin, strophanthin and glonoin, each 1/100 grain, three times a day. Notwithstanding the use of these cardiac stimulants, the pulse was at times nearly absent. Finding that there was menorrhagia, it was arrested by cotarnine hydrochlorid in ¾ grain doses three times a day. But the pulse continued feeble, in spite of the administration of various forms of iron, quinine, and strychnin, in addition to the cardiac stimulants. The hemoglobin, however, gradually rose to about 90. But the feebleness of the heart continued, and in fact at times the pulse at the wrist was absent, so that it was impossible to take the blood pressure. Under these circumstances, I ordered 2 grains of dried adrenal gland[18]. The effect was immediate. Within a half hour of taking it, there was fulness of the head, to such a degree that the patient was obliged to lie down for some minutes. Then the pulse returned to almost its proper force, and the pressure rose for the first time to 115 (maximum). In order to keep up the effect of the adrenal gland but modify the head symptoms, she is now taking 1½ grains of it, with 1/10 grain of the posterior lobe of the pituitary, to which is added ferri citrate ½ grain. This combination, in the form of a tablet, is taken three times a day.

Here, then, is a case which, with the exception of Sergent's white line, the test for which was not made, manifested the signs attributed to adrenal insufficiency, viz.: neurasthenia, anemia, debility, cardiac weakness, with hypotension. It is important to note that notwithstanding the use of digitalin, strophanthin, glonoin, iron and strychnin, the adrenal gland was the only remedy that was able to restore the pulse and relieve the hypotension.

In conclusion, it may be said that animal extracts have effected therapeutic results that were not attainable prior to their introduction. The circles in which they are applicable are also gradually widening. In these advances Sajous has done us great service, for he has collected the scattered facts and welded them into a comprehensible whole. In quoting freely from his writings, as I have done, it may be said that he has given a more complete description of the internal secretions than any other writer.

7 East 80th Street.

[17]Cannon. Am. Jour. of Phys., XXXIII, 356, 1914.
[18]Parke, Davis & Co.

A HUNDRED YEARS BEFORE HE IS BORN.

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When persons holding positions of authority, and presumed to be scientifically informed, make dogmatic statements, the public comes to believe those statements because of their authority. Under such circumstances it becomes extremely difficult to give new information on the subject in any other way than by making a direct attack upon the dogma, and the lack of scientific knowledge on the part of those who give out such dogmas as science.

In a recent book is found the following:

"A couple of generations ago it was possible to teach that a child's education should begin 'a hundred years before he is born' for we could then believe that the education of parents actually affected the characters which they transmitted to their offspring. But with the new knowledge of heredity such belief is no longer possible, since education is nothing but a series of acquired characters and hence not transmitted by inheritance. The education of the parents has no effect upon the inherited traits of the children."

The above quotation is a good example of what has become chronic among the superficially informed. Instead of investigating the effects of education itself, they investigate some unrelated matter and then draw unwarranted conclusions. The statement that acquired characters, more properly called *acquirements*, are not inherited has no foundation in fact, and was never investigated by any of those persons who made the statement. Acquirements are always inherited, and such inheritance is the sole means by which we get evolution from a lower to a higher stage. There is an abundance of evidence bearing on that fact, and the accuracy of that evidence has never been questioned.

The error into which biologists fall in this matter is based on superficial consideration and a failure to distinquish in several important matters. The verb *to acquire* is an active verb and implies direct action or the performance of work on the part of those which do the acquiring. Getting an education requires mental work, and the acquirement is a mental development coming as the result of that work. The amount of mental development which a person acquires as the result of getting an education is represented by the amount of work performed. None of those persons who tell us that acquirements are not inherited ever measured up an acquirement of any kind and then compared the amount of the acquirement with the inheritance of the *subsequently* produced ocspring.

They have not even investigated acquirements for one generation, when any investigation of the matter

to be reliable should be extended for three generations. If a man's education should begin "a hundred years before he is born," then it should begin with his great-grandparents. A man has two parents, four grandparents, and eight great-grandparents, a total of fourteen individuals. When the biologist has carefully measured up the amount of education acquired by each one of these fourteen persons before reproducing, and then compared those measurements with what is the normal acquirement of the average parent when the average child is born, and also compared the final product with the great-grandparents, it will be time to pay some attention to his statements. Until he does do something of that kind, his statements may be dismissed as unworthy of consideration.

There have been, in this world, many eminent men of intellectual power. In the matter of mental power they had "old heads on young shoulders." The "old head" is one educated by experience and developed by mental activity. Augustus, Bacon and Humboldt had old heads on young shoulders in the sense that they had great mental power in organs which were relatively young in years. They had these old heads because they were the sons and grandsons of old heads. It was not necessary for them to work hard mentally to get all the mental power they had. Their fathers and grandfathers did the greater part of the mental work for them, and then transmitted the acquired development to their sons.

Octavian, surnamed Augustus because of his great wisdom, was the man who changed the Roman Republic into an Empire, after that republic was established for more than three times as long as the United States has been established. And he did it "in a manner which has no parallel in history." Augustus came from three generations of "old heads" extending back more than one hundred and seventy years, or an average of about fifty-seven years from father to son. Descent from such old heads for three generations in succession is among the rarest of rare things. And that rare combination made the equally rare Augustus.

Bacon was also the son of an old head, and one which had received an education at Cambridge in its youth. The father was fifty-two years of age when Francis Bacon was born, and that father was himself the son of an old head. The mother of Bacon was an intensely educated woman, and was the daughter of an old head.

Alexander Von Humboldt was also the son of an old and highly educated head. His father was a major in the Prussian army, and had been raised to the position of royal chamberlain for his strenuous services. The head was forty-nine years old when Alexander was born.

These are mere examples of a thing which is universally true. A man of great intellectual ability is always the product of an education which began "a hundred years before he was born." None of them was ever produced in any other way, and breeding operations which fail to educate the ancestors always results in producing the mediocre or the feeble-minded. This lack of education may come from the lack of schooling and lack of mental activity, or it may come by using young heads for parents—heads which have not had time to become well educated.

Benjamin Franklin was the son of an old head, and his father was the son of an old head, and so were the grandfather and other ancestors for five generations in succession. And his mother was the daughter of an old head. But Benjamin had a son when he was a young head, and do what he would, he could make nothing more than an ordinary man out of that son.

Peter the Great was the son of an old head. When Peter was a young head he had a son, but that son had none of the ability of his father. Louis XIV was the "Great" King of France. He was from two generations of old heads. But from Louis XIV on, the descent was from young heads, and mental ability disappeared entirely from those descendants.

And so it always is. If we give each generation an increasing amount of education before reproducing, the race will advance step by step. If we give each generation a decreasing amount of education before reproducing, the race will decline step by step to a lower level of intelligence.

Practically all states in the United States permit minors to marry, and many states permit a fourteen-year-old boy to marry a twelve-year-old girl. Minors marry and minors have children. Two or three generations of such reproduction result in starting a new feeble-minded family into existence, and these feeble-minded families form one of the difficult problems of society. The sure road to the elimination of the feeble-minded is the extended education of children and the prevention of marriages by minors. It is the scientific remedy because it strikes directly at the original cause of feeble-mindedness.

That superior men and women, as a class, come from mature parentage extending over two or three generations is a fact which is now acknowledged by every one who has made any attempt to investigate the matter. Those who deny the inheritance of acquirements do not, however, investigate the actual education involved, but attempt to dismiss the matter by guesses which they offer as scientific explanations. In considering such guesses the reader should take note of the fact that any explanation offered, to be sound, must apply to the trotting horse just as well as to human beings.

In one hundred years the American trotter was developed from a three-minute trotter to a two-minute trotter. From the two-minute trotter of today back to the ancestor of one hundred years ago, there is a trifle over seven generations. As a consequence, the two-minute trotter has in that period more than two hundred and fifty progenitors. Those progenitors were mature to the extent of the entire number of them averaging more than four years above the average age of sires and dams. That means more than a thousand years of excess age piled up in one pedigree to get a two-minute trotter. Those "years" involved in producing improved trotters need explaining just as much as the years in human beings.

There is also another angle to the trotting horse which goes directly to the question of "educating the grandfather." The mere piling up of years in the trotting parent, unaccompanied by actual education in trotting, never produced any improvement in the trotting stock during the nineteenth century. The two hundred and fifty-odd progenitors in the pedigree of a two-minute trotter were horses which actually worked hard at the trot for years before reproducing. Every attempt to improve the trotter by selection and breeding, without strenuous and long continued trotting education, resulted in failure, and horse-breeding history is full of the records of such failures.

These facts are facts of record, and the biologist who does not know them is willfully ignorant. If he feels disposed to deny them off-hand he might take note of the fact that the records are of a kind which anyone

can investigate for himself. All that it is necessary to do is to write out pedigrees with dates and examine published history.

A NEW PHASE OF THE DRUG ADDICT LAWS.

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A recent trial of two Boston physicians for violating the state law and the verdict of guilty, will make a very profound impression on all physicians practicing in that state.

Two well known physicians, one—a medical teacher and the other a recent steamship surgeon, had an office together. The surgeon gave prescriptions for morphia to an increasing clientage observing the law, in keeping accurate records of the patients and data, of what they took, with notes of their condition, also, efforts to reduce the amount and to supplement it with tonics and so on. The federal authorities decided that the work was legitimate, but the state authorities warned the druggist not to fill prescriptions of the amount of morphia he gave. During his absence, his partner continued the work, only dispensing the drug from the office. The state authorities raided the office, taking away the books and records, arresting both of these men under the charge of unlawfully conspiring to defeat the state law and giving enormous doses of morphin. They were put under bonds and recently tried in the Superior Court.

The specific charge was that they had violated the law, which reads—"That all persons selling or prescribing narcotic drugs except for obvious therapeutical purposes, should be held as criminals." The trial lasted two weeks and the real question turned on whether these drugs were given for obvious therapeutical purposes. The state contended that giving forty or fifty grains of morphia, with twenty grains or more of cocaine every four or five days was not therapeutical and had no purpose of curing or relieving the victims. A large number of morphin addicts were put on the stand who had been treated by these physicians and who swore that they were taking from fifteen to twenty grains a day. Some of these patients were in jail, having been arrested for minor offenses. The expert evidence by the state declared that from a quarter to one grain was the largest dose that should be given to anyone and that sudden withdrawal was the proper treatment. This was supported by the evidence from jail and workhouse physicians. Two of them asserted that if they were addicted to the drug, the jail would be the most preferable place for its removal and cure. A variety of testimony offered along this line was a very sad mixture of assumptions and theories, that represented really nothing but their own visionary opinions.

The defense claimed that gradual withdrawal was the only possible way of helping these patients, particularly as they were not confined and they had entire freedom of action regarding the use of the drug. One who claimed to take twenty grains a day, was given a prescription of from forty to sixty grains to last four or five days and a blank to fill out the amounts that he took from day to day, trusting to his honesty and earnestness, to carry out the instructions. When he failed to do this, he was not treated any longer. In the meantime, he was given tonics and advised to go to some place where the drug could be removed with exactness. Other drugs were given. A number of these patients returned from time to time according to instructions and received smaller doses of the drug. Some of them procured drug elsewhere by secretive measures and when this was found out, they were discharged. Medical experts for the defense swore that this was legitimate and thoroughly therapeutic in every sense of the word, that all of these victims were obviously suffering and it was the duty of the physician to relieve that suffering and his judgment must be depended upon as to the amount necessary to give. Many of these patients had been using the drug for years and small doses were practically useless.

The state contended that these chronic cases were moral degenerates and did not come under the class that the law had in mind needing therapeutical help. As usual the trial brought out a most confusing mass of theories, opinions, text-book statements and dogmatic assertions, showing profound ignorance of the whole subject and the most mediaeval ideas of how it could be corrected. The jury was probably surfeited, to the extent, that nothing was clear or fixed and hence, brought in a verdict of guilty. Both physicians were held and an appeal was taken to the higher court.

The activity of the state authority in this trial showed an obvious misconception of the duties of physicians and their inability to make any distinctions concerning the application of the law. It literally asserts, that a physician's judgment as to the obvious therapeutic necessity of the drug, is no standard to be followed; that the court and jury should decide this and not the physician. This position works the gravest injustice to the entire profession of the state and, of course, will be repealed very soon.

There are many hundred physicians in the state of Massachusetts who have addicts under their care. Most of them are old patients, who through the advent of the Harrison Law, have been unable to procure their supplies of morphia and other drugs. They turn to the family physician, who recognizes their necessity and supplies them, either by the actual prescription or such quantities of the drug as they actually need. These patients occupy all stations of society and look to the family physician for help. They are not those wandering chronic addicts of the streets, but belong to the active working men and women.

If the verdict in this case is carried out, it will make every physician who prescribes morphin or other narcotics in larger doses than that laid down in the book criminal and liable to arrest. An example is that of a Boston physician, who has at least four or five patients in different parts of the city and country, who require five or ten grains of morphin daily and as long as they can get it from the family physician, are content and make every effort to reduce the quantity. Now if the physician refuses to supply these drugs, they are forced to go out on the street and adopt all sorts of criminal methods and ways to secure it. All restriction is removed and they either take larger doses or turn to some substitute worse than the original. The effect of the act is simply to increase the drug addicts instead of restricting them and the result of this trial is a startling assertion that trained physicians are not to be trusted to administer this drug. If courts and juries are to determine what is an obvious therapeutic necessity in matters of this kind there is a tremendous reversion to the deplorable bigotry of the colonial times. Evidently, the drug addict and the means and measures of relieving his maladies, are still regarded as moral conditions and the zeal of reformers will require much more light to understand the teachings of modern science.

A STUDY OF THE EFFECTS OF ISOTONIC HYPOCHLORITE SOLUTION ON THE BLOOD AND BLOOD-MAKING ORGANS.

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New York.

The isotonic sodium hypochlorite solution, which forms the subject of this investigation, has been used by me as a disinfectant in surgical practice and for intravenous and interperitoneal use for more than twelve years past.* As lately the use of hypochlorites has taken considerable space in the columns of medical journals, the following pharmacological observations on the effect of intravenous infusion of hypochlorite solutions may be of timely interest:

These experiments and observations were undertaken in the attempt to answer the following questions:

(1) Has the intravenous infusion of isotonic hypochlorite solution any deleterious effects on the blood?

(2) If such infusion has any good effects, what are these effects?

(3) What are the effects of such infusion on impoverished blood?

(4). What is the course, completeness and rapidity of the blood regeneration?

The experiments were made on healthy young dogs of medium weight. Three dogs were used. In one animal one half of the total blood of the body was removed, and in another one-fifth of the total blood was withdrawn, previous to the operation. The purpose of this was to produce an artificial anaemia or impoverished condition of the blood. The third dog was kept and his blood examined from time to time for the purpose of comparison. Each animal was observed for a few days before the infusion so as to ascertain the normal condition of his blood. This was determined by means of the following:

(1) The haematocrite.
(2) The haemometer.
(3) The Thoma-Zeiss corpuscle counter.
(4) The micrometer.

The haematocrite determined the corpuscle volume or the relative proportion of the corpuscles and plasma. The haemometer determined the percentage of hemoglobin. The corpuscle counter determined the number of red cells per cubic millimeter. The micrometer determined the average size of the individual corpuscles.

Withdrawal of the Blood.

(a) Preparation—The dog was weighed and given a dose of chloretone ¾ grams per kilo. of the body weight two hours previous to the time set for the operation. If he were not then completely anaesthetized he was given a small extra dose of chloretone, or a small amount of ether was chosen for the following reasons:

(1) The vein is quite large and would allow sufficiently rapid hemorrhage.

(2) Less liability of clotting.

(3) The dressings of the wound are not so likely to be torn off by the dog.

(b) Operation—The external jugular vein was opened, an incision was made and an amount of blood was withdrawn. When the required quantity had been withdrawn a glass canula was inserted into the vein and connected by a rubber tube with a 100 centimeter burette containing the fluid to be infused.

(c) Infusion—The isotonic hypochlorite solution, at a temperature of 110°F., was poured into the burette and allowed to flow slowly into the vein under hydrostatic pressure. The rapidity of the flow was regulated by a screw pinch and the temperature of the fluid was maintained at 110°F. by means of an electric current to which resistance is offered by a coil of iron wire surrounding the burette, which is first wrapped in asbestos, with the exception of a narrow slit to allow the readings to be made. The time of the infusion is usually 15 minutes.

The amount of blood withdrawn was 40 per cent of the total in dog (a), and 20 per cent in dog (b). The quantity of fluid infused was equivalent to 50 per cent of the total blood in dog (a), or 25 per cent more than the blood withdrawn. In dog (b) the quantity of fluid infused was 24 per cent of the dog's blood, or 20 per cent more than the quantity withdrawn.

(c) After treatment—The wound was dressed with the hypochlorite solution. The dog was kept in a warm room and fed on nourishing broths for two days, after which he was treated as was the control dog.

Results.

The following tables give the results of over 6 weeks' observations of the blood of all three dogs:

	Haemotocrite (Corpuscle Volume)	Corpuscles	Haemometer (Haemoglobin)	Micrometer (Size of Corpuscles)	
Feb. 3	50	5,800,000	85%	5.1	
Feb. 4	50	6,000,000	85%	5.3	
Feb. 5	46.7	5,600,000	85%	5.2	
Average	48.9	5,800,000	85%	5.2	
Feb. 5	22	2,500,000	35%	5.6	Operation
Feb. 8	23	3,000,000	47%	5.5	
Feb. 13	25	3,000,000	47%	6.2	
Feb. 20	27	3,200,000	50%	6.0	
Feb. 27	36	3,600,000	55%	6.0	
Mar. 6	40	4,700,000	70%	6.3	
Mar. 13	45	5,400,000	85%	6.4	
Mar. 15	48	5,600,000	90%		
Mar. 17	49	6,000,000	100%		
Mar. 20	50	6,100,000	95%		
Average	49	5,900,000	95%	6.6	

Dog A weighed 15.6 Kilos.
Total blood represents 1-13 of this, 1200 cc.
Blood withdrawn—40 per cent of this, or 480 cc.
Fluid infused—600 cc.

Table II. Dog B.

Blood withdrawn—20 per cent total blood.
Fluid infused—24 per cent of total blood.

	Haemotocrite (Corpuscle Volume)	Corpuscles	Haemometer (Haemoglobin)	Micrometer (Size of Corpuscles)	
Feb. 3	54.3	6,200,000	85%	5.1	
Feb. 4	51.4	6,700,000	76%	5.0	
Feb. 5	53.3	6,600,000	90%	5.2	
Average	53	6,500,000	38.3%	5.1	
Feb. 6	38	4,500,000	55%	5.1	Operation
Feb. 8	34	4,000,000	50%	5.5	
Feb. 13	36	4,300,000	52%	6.2	
Feb. 20	37	4,200,000	55%	3.3	
Feb. 27	41.5	5,000,000	65%	6.3	
Mar. 6	45.5	6,000,000	80%	6.3	
Mar. 13	52.6	6,250,000	95%	6.4	
Mar. 15	54	6.500,000	90%	6.5	
Mar. 20	53	7,100,000	110%	6.5	
Mar. 17	55	6,800,000	105%	6.5	
Average for week	54	6,800,000	100.2%	6.5	

Table III. Dog C.

Dog C was used as a control. He was treated in every way as to care, feeding, etc., exactly as Dogs A and B, but was not operated upon.

	Haemotocrite (Corpuscle Volume)	Corpuscles	Haemometer (Haemoglobin)	Micrometer (Size of Corpuscles)
Feb. 3	47	6,500,000	80%	
Feb. 4	49	6,800,000	85%	
Feb. 5	50	6,800,000	85%	
Average	48.6	6,700,000	83.3%	6.7
Feb. 6	47.5	6,500,000	85%	6.5
Feb. 13	47	6,400,000	75%	6.5

*Isotonic Sodium Hypochlorite Solution. Paper read at Chicago Post-Graduate School of Medicine, Chicago, May 18, 1905.

The blood examinations were made usually three times a week,* but in these tables after the 8th of February I have recorded only the averages for the week, except during the last week of the experiment, when the numbers were recorded for each blood examination.

The haematocrite observations are recorded in percentages in column 2, the number of red cells in column 3, the readings with Tallquist's haemometer in column 4; 100 on this chart representing normal blood. In column 5 the average size of individual corpuscles is given, while column 6 shows the date of operation.

In comparing these tables, it would seem that we are warranted in concluding that:

I. The isotonic hypochlorite solution has no injurious effect on the blood or blood elements.

II. The solution stimulates the blood-making organs.

III. Impoverished blood is rapidly restored to normal.

IV. The regeneration of blood proceeds more rapidly after the beginning of the third week than during the preceding two.

V. Not only is the normal restored, but before the end of the sixth week the corpuscle volume, the number of red cells and the haemoglobin are all higher than the normal, as shown not only by the three days' observations previous to operation, but also by examining the records of the control dog.

33 East Sixtieth Street.

"Twilight Sleep."

Haultain & Swift of Edinburgh discuss the value of this method of painless child-birth and state the following summary of special points which are most important:

1. In the case of a primipara the first injection must not be given too early, as it tends to stop the pains. The rule of giving the first injection when the os admits two fingers, and the pains are regular, is a useful one. In the case of a multipara, however, the injections cannot be given too early after the pains have started. It is generally found that the first injection is given too late.

2. The second injection, namely, the first 1-450 gr. of pure hyoscin should be given about an hour after the initial injection, whether the patient is well under or not. If this injection is delayed the effect of the morphin tends to wear off, when the future injections of hyoscin will not take effect.

3. The injection can with safety be repeated either at hourly or three-quarter hourly intervals.

4. Do not repeat the morphin in the latter part of the second stage or the child will most probably be born oligopnoeic. If the hyoscin is not taking effect, then it is well to give the mother a slight whiff of chloroform; thus the hyoscin is allowed to work and the patient gets again into the condition of "twilight sleep."

5. The patient's friends must be kept away from the room, which ought to be quiet and darkened.

6. Patients, if thirsty, must be given water to drink.

7. The bladder must be catheterized during long labours.

8. Remove the baby to another room after birth, so that the mother cannot hear the cries, otherwise she may remember the cry and so piece together, and so imagine her whole labour.

From the foregoing experience it may be stated that we have a safe and sufficient means of managing labor painlessly in the majority of cases. It requires, however, the constant attendance of a competent attendant. This role can be efficiently undertaken by a reliable nurse under supervision, which makes its adoption in better class private practice possible to the medical practitioner.

It is of special value in primiparae, in whom, as a rule, the first and second stages of labor are long and painful.

It is also of great value in a prolonged second stage, due to a large head or slightly contracted pelvis, as it allows of head moulding without unduly exhausting the patient.

So far as amnesia is concerned, it is of little use to commence the treatment during the second stage.

The strength of the uterine contractions is not diminished, hence the advantage over chloroform. There are no contraindications to its use beyond extreme restlessness, which is very exceptional, and probably due to an idiosyncrasy.

Thirty-seven of the forty patients rose from bed on the third day after labor. (*British Med. Jour., Oct.* 4, 1916.)

*A hyperteucocytosis was constant in the infused dog.

Five Minute Clinical Talks

A TREATMENT OF URETHRAL STRICTURE.

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It will be noted that this communication is headed *"A* Treatment"—not *"The* Treatment Of Urethral Stricture"—because it is not the only method whereby this condition can be combated. It is submitted to the reader's attention because under equal circumstances I have found it superior to the other methods in common use. In doing so I am not exploiting a theory of my own, nor do I unduly decry other modes of treatment. It is not original on my part and it is not new—only it is not used as much, as in my opinion, its merits demand. I refer to the treatment of stricture by rapid dilatation.

All those who have treated many strictures—either by gradual dilation or by external or internal urethrotomy—know that the percentage of recurrences is large, especially if the stricture is in the deep urethra, unless monthly, quarterly or semi-annual dilatations are kept up. The stricture is really not cured; the patency of the canal is maintained only by constant vigilance. A knowledge of the pathology of the process will explain this and also the reason why rapid dilatation is free from this contingency. I must ask, however, the reader's indulgence in not going into these details. The study of the subject in any modern text book on genito-urinary diseases will give him the necessary information.

Before describing the technique I shall briefly state the forms where it is not applicable. These are in the so-called soft strictures of large calibre. Such strictures are best treated by gradual dilatation. In cases where the stricture is complicated with peri-urethral abscess rapid dilatation is not advisable. The abscess should be opened and drained and the stricture cut, preferably by internal urethrotomy. Later, when the acute process has completely subsided, rapid dilatation may be done. In those cases where there is an extensive infiltration of urine—the so-called urinary phlegmon—rapid dilatation must not be done. These cases demand bold and radical treatment. The infiltrated area must be slit from end to end. All pus pockets must be opened up and drained. If the case is an exceptionally severe one, supra-pubic cystotomy must be performed and the bladder drained through the abdomen, the cutting of the stricture being deferred until later. Where there are many false passages the result of misdirected efforts to penetrate the stricture, rapid dilatation is not advisable until they have healed. An enlarged prostate is also a contra-indication. A prostatectomy should be performed first.

In beginning the treatment the location of the stricture should first be determined, also its degree of constriction and whether it is tortuous, or not. This is best done with a flexible *bougie a boule*—a more adaptable instrument than the metal olivary ones of Otis. Should the stricture allow, pass a number 6 French flexible bougie and allow it to remain over night. If this be possible it will be found that the stricture will be much softer and capable of admitting a larger instrument. If a number 6 flexible bougie cannot be passed it will be necessary to have recourse to whalebone filiforms. If upon trial a single filiform cannot be introduced through the stricture, the urethra should be filled with sterilized olive oil and five or six filiforms passed down to the stricture. By dipping the ends of

the filiforms in hot water they can be bent into angular or spiral shapes which often facilitate engagement into the orifice of the stricture. By gently manipulating first one and then the other it is most always possible to introduce one into the bladder. When this has been accomplished—and it is sometimes easier to write about than it is to do it—the battle is half won.

With the filiform as a guide a Gouley tunneled catheter, number 8 French, is threaded through the eye at its extremity and gently passed into the bladder. The filiform is withdrawn and the catheter held in position by tapes around the corona glandis of the penis. The obturator or mandrin is withdrawn and the retained urine is allowed to escape. If all of the urine is allowed to run off, 90 c.c. of boric acid or normal salt solution must *immediately* be injected into the bladder through the catheter, or otherwise hemorrhage may result, due to the sudden engorgement of the blood vessels of the urinary tract. If the bowels are inclined to be sluggish, a blue mass pill followed by a bottle of magnesia should be given. The reaction of the urine should be noted. If it is acid give urotropin, 0.3 gms. in tablets t.i.d. If, however, it is alkaline from a coexistent cystitis as is usually the case, precede by three hours the urotropin by 1.3 gms. of sodii biphosphas (acid sodium phosphate). This is to render the alkaline urine acid so the urotropin will exert its effect, as it does not act in an alkaline medium.

The Gouley catheter is allowed to remain for twenty-four to thirty-six hours. A small plug being kept in the opening to prevent the urine from dribbling away. Every three hours the plug should be removed and the urine allowed to flow out. After which 60 c.c. of a 1:4000 nitrate of silver solution should be injected into the bladder and allowed to remain.

At the end of that time the patient is anesthetized and the catheter removed. It will be found that the stricture has become considerably softened and enlarged —much more so than after the flexible bougie. Beginning with a number 6 French, the stricture is dilated with flexible bougies to number 12 French. After that size is reached metal instruments are used. The dilatation is carried up to 28 or 30 French, when a Kohlman dilator is introduced and the urethra stretched until 35 French is registered on the dial. After this instrument is withdrawn pass two or three more sounds. Then inject 90 c.c. of silver nitrate solution and as the catheter is being withdrawn continue the injection so that the surface of the urethra is bathed in the solution.

The patient is returned to bed and kept there for three days. He is fed on a milk diet. Ol. eucalyp. 0.6 c.c. in capsules t.i.d. is administered along with the urotropin and the acid sodium phosphate. This I have found to be a very good preventative of urethral fever. He is then allowed to resume his usual duties—cured.

The treatment of stricture by the method just described I have found to be superior to any other. The stricture does not return and the danger of hemorrhage and uremia are reduced to the minimum. It does not require the surgical skill necessary to do a urethrotomy, nor does it entail a prolonged convalescence. The operation can be performed at the patient's home if hospital facilities are not at hand. No better reasons for its being used could in my opinion be given.

1632 Avenue A.

A displacement of the little toe, similar in nature to hallux valgus, frequently occurs as the result of wearing shoes which are too tight and too pointed. The toe is displaced inwards either over the dorsal or under the palmar aspect of the fourth toe.

The Diagnostic Laboratory

Conducted by CHESTER T. STONE, M. D.,
Brooklyn, N. Y.

Water Bath Methods for Complement Fixation and Blood Grouping.

Norman E. Williamson, of Stockton, Cal., says a complement fixation test may be performed on a slide with a small quantity of material as follows:

A rectangular water bath is fitted with thermoregulator at one end. Lateral flanges are placed ½ inch from the top. The bath is filled to within one inch of the flanges. On this ledge rest the ends of two glass rods placed across the water bath two inches apart. To the glass rods, so that it is below them but not long enough to rest on the edges, is tied a rectangular piece of cardboard. There is a narrow slit in this cardboard lengthwise, half way between the rods. The object of this is to maintain the proper amount of moisture on the under side of a slide placed across the rods. If there were no cardboard, too much moisture would be precipitated on the slide, causing hemolysis of a drop of blood from dilution. If the cardboard is not perforated or slit, the under side of the slide will dry. The size of the slit must be such that a faint haze forms on the under side of the slide which promptly disappears on removing the slide from the bath. Over the top of the bath is placed a glass plate save for the end occupied by the heat regulating apparatus. The space here is closed by a vertical glass plate resting in the water but allowing free interchange of water below it. The plate of glass on top of the bath must not fit too snugly on account of precipitation of water. Blotting paper is attached by adhesive to the under side of the plate to prevent dripping on the slides. The thermometer is placed on the rods and the heat regulating apparatus so arranged that the temperature at that point will be 37° C. Constant level is maintained by a filled inverted water bottle with mouth placed at the level desired.

For performing the test very small quantities of standard reagents are prepared. Clean slides, three small standard platinum loops, one large platinum loop, and one straight platinum wire are necessary. The slides are placed on a sheet of paper each on a number. A loopful of material is taken for the smallest quantity of any of the ingredients of the test and larger quantities of the ingredients of the test and larger quantities of other ingredients are multiplies of this smallest amount. For instance, in performing Noguchi's modification of the Wassermann test, it is done as follows: One small loop of Noguchi antigen properly diluted is placed on the side as shown; one small loop of undiluted complement, two small loops of patient's serum; one large loop of salt solution. These are then mixed with the straight wire and quickly inverted over the water of the water bath across the rods. The time is marked on the paper by the number. Incubate ½ hour at 37°C.

Remove slide and add five small loops of 10 per cent. suspension of sheep red corpuscles and two small loops of amboceptor which is of such a strength that five units are contained in 0.5 c.c. Mix with a straight platinum wire and replace in water bath. Incubate for one hour. Positive specimens are brick red and opaque; negative are clear and brown.

The strength of the complement has been previously determined as follows: One loopful of complement is added to each of four loops, three loops, two loops, and one loop of salt solution and one loop of each mixture

and also of the undiluted complement is added to five loops of the 10 per cent. suspension of sheeps corpuscles and one loop of amboceptor in the strength given above, and placed in the water bath for one hour for hemolysis. Twice the strength of the smallest amount of complement giving complete hemolysis is taken for the test.

For Noguchi's test use two loops of serum and one loop of complement in case the strength of the complement is such that one unit is 5/100 of a c.c.; one loop of Noguchi antigen which has been prepared by adding one part of methyl alcoholic solution to seven parts of salt solution; five loops of 5 per cent. suspension of washed human corpuscles and two loops of amboceptor which has been prepared in the ratio of 5 units to 0.2 of a c.c. of salt solution.

Each specimen should be duplicated without antigen to determine anticomplementary action of the serum. The usual positive and negative controls are required. A positive result as above equals 2 plus. If one loop of serum gives a positive result it would be 3 plus. Find the smallest quantity of serum which will give complete inhibition and rate accordingly. By this method the presence of antisheep amboceptor in human blood may be disregarded as excess of amboceptor will have no effect if all the complement is fixed.

The same rule is applicable in the use of the human hemolytic system. Two loops full of serum can be dried on a slide and later dissolved with salt solution and used for the complement fixation test. The dried blood may require more complement than the fresh blood and the best results are obtained by using sensitized red cells. For this purpose it is well to have an amboceptor which contains comparatively weak agglutinins. To the washed cells in a large quantity of salt solution was added enough amboceptor to make 3 units for the entire quantity of cells. The mixture is kept at 37° for two hours or left in the ice box over night. The cells are then thrown down, the fluid decanted, and fresh salt solution added to make the proper dilution. The complement is titrated with sensitized cells and the best results with dry blood are obtained if twice the amount of complement which will completely hemolyze these cells in 15 minutes, is used. Known positive and negative dry sera must be used for controls.

Kaplan adds his amboceptor to his cells prior to the performance of a Wassermann reaction and his cells are more or less sensitized according to the time and temperature, but he does not make a special effort to have them entirely sensitized as is done in this test. There seems to be no reason why dry blood could not be used for the test tube reaction. One tenth of a c.c. of serum weighs when dry 10 milligrams, thus 20 milligrams of dry serum could be added to each tube for the Wassermann test after dissolving in salt solution and 8 milligrams for the Noguchi test. Serum can be dried on a clean piece of glass, scraped off, put in a homeopathic vial and sent to the laboratory. It need not be sterile.

Since serum is usually readily obtainable fresh, the water bath method would not often be required for the diagnosis of syphilis, but it may have a distinct value when bacterial emulsions cannot easily be obtained for antigen in the quantity desired for the complement fixation. Test tube methods are easier to perform when control of all conditions is considered.

This water bath slide method was used by Williamson for the purpose of determining the grouping of bloods, using the loops of material as advised by Brem but using no cover-glass or well slide. He used for the test sera of 2, 3 and 4 of Moss which he found to be strong in agglutinins. Testing the suspension of corpuscles of the patient with strong sera of groups 2 and 3 will place his group. If the patient happens to have a weak agglutinin for his group, this method is an advantage. For instance, if the corpuscles are agglutinated by group 2, not by group 3, sera, the patient belongs to group 3. If agglutinated by 3, not by group 2, he belongs to group 2. If agglutinated by both he belongs to group 1. If agglutinated by neither he belongs to group 4. A further check with the group 4 serum is then used. Since the corpuscles of any group other than 4 may be affected by hemolysin in a patient's serum, it is advisable in using the human hemolytic system for complement fixation test, to use only a group of 4 suspension of corpuscles.

Williamson obtains them easily as follows: After pouring the serum off the blood obtained from the patients for Wassermann, he makes a suspension of a few of the red cells which he judges to be approximately 5 per cent. and see if they will be agglutinated by a group 4 serum I keep in stock. If they are not the blood belongs to group 4. He shakes out of the clot by the aid of a little salt solution some red cells, wash them in the usual manner, using them for the fixation test. He finds that on an average without getting either fibrin or leucocytes he can shake out ¾ c.c. of red cells from the bloods by this method. He uses such cells for the immunization of rabbits after having determined that the Wassermann in that case is negative and the history of the patient negative. Such cells can be fixed safely only after the serum has been removed.—(*Jour. Laboratory and Clinical Medicine*, Oct., 1916.)

Test for Occult Blood in the Stool.

A little of the stool (if formed, from its central portion) is spread over a clean slide. Over this the reagent is poured, a bit of benzidin, dissolved in 2 c.c. glacial acetic acid, plus 20 drops of 3 per cent. hydrogen peroxide. A blue color shows the presence of blood. The test is as delicate and reliable as any benzidin test. Extraneous ferments, which constitute a possible source of error, may be excluded by heating the film.—(*Wagner, Arch. fur Verdauungskrankh, Vol. XX.*, No. 4.)

Importance of Counting Pus Cells in the Urine.

According to Block and Nyon it is of importance to count the pus cells in the urine. Their method is as follows: The specimen of urine is gently stirred or agitated so that the solid and liquid portions are thoroughly mixed and a drop is immediately taken and placed upon an ordinary blood counting chamber and covered with a cover glass and counted, just as in counting leucocytes in the blood. The reports are then made as to the number of pus cells to 0.1 c.mm. or 1.0 c.mm. as desired. The value of this method of reporting the number of pus cells is evident, as it conveys at once an accurate idea of the actual number of pus cells; it enables both the examiner and others to compare the specimens taken at different times from the same case and determine whether the patient is getting better or worse; it gives an accurate evidence of the value of different forms of treatment; it gives a clear idea at once as to whether the pus cells come from the bladder or urethra in the three-glass test; or from the urinary or genital tract in women by counting the pus cells before a douche (and thorough cleansing); and it avoids the danger of catheterization to determine this point.—(*So. Med. Jour.*)

62 Pierrepont St.

The end products of endogenous protein metabolism are ammonium carbonate and amino acids.

The Physician's Library

My Birth: the Autobiography of an Unborn Infant, by Armenouhie T. Lamson; New York. The Macmillan Company, 1917.

"My Birth" is evidently the creation of a very enthusiastic mother, obsessed by the notion that her book is quite the most daring departure in human thought of the century. It is also, in the words of the author, strange and modest, although based upon the data dug out of the works of the embryologists and anatomists.

We say an "enthusiastic" mother because she laments the vast number of ova that escape fertilization. "What a pity, then, that so few of these precious life-carriers get an opportunity to fulfill their great calling. When I am born, I shall surely try and find out why this should be so. Is it true that selfish economic factors force men to forcefully cut down our birth rate and deprive us of our birthright—to me and to bear? From the many thousand ova in every woman, at least two hundred mature and are equipped to assist in the birth of a new being, but how few are finally chosen for that glorious function."

Votes for ova!

And here we have been crying about our excessive birth rate. Here have been hysterical propagandists appealing for birth control, when the simple and great truth is that women and men have been guilty of almost completely dodging their parental obligations.

"At least two hundred [ova] mature and are equipped to assist in the birth of a new being." Good heavens, of what a betrayal of nature men and women are guilty.

Still, if full justice is to be done to our reproductive capacities, there will be an end of the college-bred woman who, presumably, will write more books on the order of the present one.

Can some little philosopher tell us why it is that there is not the slightest danger of an epidemic of child bearing attacking the ladies who are to write such books, despite their ecstatic interest in the matter of maternity?

The facts which the unborn wonder recites, we think, would be far more impressive in a serious scientific work, and we are quite certain that the descriptions would be clearer and the style less reproachable.

Only one non-scientific person ever lived who could have done justice to such a theme—O. Henry. Can you imagine, reader, how he would have rendered that episode which our present author sets forth in the following language—she is describing the "great miracle," the impregnation of the ovum: "I suddenly felt myself forcefully held and lovingly embraced by a friendly little stranger known as the male germ cell or 'Spermatozoön.' * * * No part of the story of my birth thrills my heart more than that which tells of the heroic act of the spermatozoön—how it saved the wandering ovum from destruction and death. I know of no greater wonder than the union and amalgamation of these two friendly cells. * * * If this great incident had not taken place, I would have perished * * * Instead, through the kind act of the male element, I was given a new life."

The title of this drama, clearly, should have been: "Alone in the Amnion, or, the Battle of Douglas' Pouch;" a Moving Picture in Five Reels; book by Lamson; staged by Sociological Film Co.; released by Macmillan.

Now O. Henry would have handled the theme in the following—but we forbear.

A. C. JACOBSON.

Surgical Operations. By Prof. Fedor Krause and Dr. Emil Heymann of the Augusta Hospital, Berlin. Translated by Albert Ehrenfried, M. D., of the Boston City Hospital. Vol. II, 715 pages. 373 illustrations. $7.00 net. New York: Rebman Co., 1917. This volume contains chapters on surgical procedures on the upper and lower jaw, the pharynx, salivary glands, surgical affections of the oral cavity, surgery of the facial and cervical nerves, the brain and of brain tumors and surgical treatment of epilepsy.

The text gives a thorough exposition of the operative technique, which is materially aided by a wealth of full page plates and individual photographs, which illustrate the various stages of the surgical procedure. The volume is a rare contribution to surgical literature.

Principles of Treatment of Broken Limbs. By William F. Fluhrer, M. D., consulting surgeon to Bellevue and Mt. Sinai Hospitals. Cloth. 128 pages. New York: Rebman Co., 1917.

This is a philosophico-surgical essay, devoted to concrete and abstract considerations and to the discussion of certain surgical procedures, which the author's long and extensive experience has shown him to be correct. It is most interesting reading, for while many surgeons will not agree with the author's findings, all must admit his ingenuity, as all know his surgical skill. Fluhrer does not worry over the technique of the other fellow. He develops his own procedure and when his results demonstrate the value of his ideas he worries not at all if the surgical world does not adopt his methods. The book is refreshing and well worthy of perusal.

Syphilis. By Loyd Thompson, M. D., Physician to the Syphilis Clinic, Government Free Bath House; Visiting Urologist to St. Joseph's Hospital. Cloth, 415 pages, with 77 engravings and 7 colored plates. $4.25 net. Philadelphia and New York: Lea & Febiger, 1916.

"Know syphilis in all its manifestations and relations and all other things clinical will be added unto you," says Osler. Acting on this advice the author has striven to show his readers syphilis in every phase and his success is striking. While we cannot agree with some of Thompson's findings, he has on the whole presented the subject in an attractive and convincing manner. He discusses the etiology, pathology, history, clinical and laboratory diagnosis, prognosis, prophylaxis and treatment in part one, while the second part is devoted to the syphilis of the different part of the body. Part three treats congenital and regional syphilis. The book is certain to find favor on account of its lucid treatment of a great subject.

Care of Patients Undergoing Gynecologic and Abdominal Procedures, Before, During, and After Operation. By E. E. MONTGOMERY, M. D., Professor of Cynecology in Jefferson Medical College. $1.25 net. Cloth. 149 pages with 61 illustrations. Philadelphia and London: W. B. Saunders Company. 1916.

To the nurse and the young gynecological assistant this little work will be of the greatest aid. It contains, as its name indicates, full directions for the care of gynecologic cases, and a great deal of good reading is made more useful by some splendid pictures.

The New Method in Diabetes. By J. H. Kellogg, M. D., of Battle Creek Sanitarium. Leather. 177 pages. $2.50 net. Battle Creek: Good Health Pub. Co., 1917.

The author sets forth his method of treatment, which includes the determination of the disturbance of the patient's metatolism, the regimen necessary, the removal of urinary sugar, the increase intolerance for carbohydrates and the education of the patient in his own care. The book is well worthy of careful perusal.

Medical Clinics of Chicago. Vol. 2, No. 4, Jan., 1917. $8 per year. Philadelphia and London: W. B. Saunders Co., 1917.

Contains clinics on a variety of subjects by eleven well known men.

Peport from the Departments of Pathology and Clinical Psychiatry, Central Indiana Hospital for the Insane, Indianapolis. Vol. II. G. F. Edenharter, M. D., Supt.

A well prepared and very useful report on the splendid work conducted at this institution.

Physical Examination and Diagnostic Anatomy. By Charles B. Slade, M. D., of University and Bellevue Hospital Medical College, New York. Second edition; thoroughly revised. Cloth. 150 pages, illustrated. $1.25 net. Philadelphia and London: W. B. Saunders Company, 1916.

This is of great value to the medical man who "does physicals" on account of the practical nature of its contents.

Clinical Gynecology. By James C. Wood, A. M., M. D., F. A. C. S., etc. 236 pages. Cloth, $2.00 net. Philadelphia: Boericke & Tafel, 1917.

This is a careful presentation of the subject from a homeopathic standpoint, based on the author's lectures at Cleveland-Pulte Medical College, with special attention to the medical treatment of these diseases.

Pharmacology and Therapeutics. By H. C. Wood, Jr., M. D., of the University of Pennsylvania. Cloth. 455 pages. $4.00. Philadelphia and London: J. B. Lippincott Co., 1916.

The second edition of this valuable treatise conforms to the changes in the recent edition of the pharmacopeia. The arrangement of the drugs is admirable. They are included under the general headings of drugs used to affect secretion, to affect the nervous system, to affect circulation, to affect the alimentary tract, affecting metabolic processes, drugs acting on causes of disease, extraneous remedies and drugs of minor import-

ance. The pharmacology is considered more comprehensively than in many text books.

Without going into detail, the reviewer may say that this volume is one of unique value to the student of pharmacology on account of the broad, expansive view he is given of a subject of intense interest.

Organic Chemistry. By Prof. E. V. McCollum of the University of Wisconsin. Cloth. 425 pages. $2.25 net. New York: The Macmillan Co., 1916.

This is a book stripped of unnecessary details and is especially intended as a foundation stone for physiological-chemistry. To medical students it will serve its purpose well.

Progressive Medicine. Vol. XX, No. 1, March, 1917. $6 per year. Philadelphia and New York: Lea & Febriger, 1917.

Filled with good things.

Clinics of John B. Murphy. Edited by P. G. Killern, Jr., of Philadelphia. Vol. II, No. 6. $8 per year. Philadelphia and London: W. B. Saunders Co., 1916.

Not only valuable for the rich surgical material it contains, but also the graceful tributes paid the dead surgeon by his colleagues.

Medical Preparedness.

The Medical Section of the Council of National Defense, presents the correlated activities of the medical departments of the government, the Council of National Defense and the Advisory Commission, and the Committee of American Physicians for medical preparedness.

The Council of National Defense was created by Congress, August 29, 1916, to co-ordinate industries and resources for the national security and welfare. It consists of the secretaries of war, the navy, the interior, agriculture, commerce and labor. An advisory commission was appointed, consisting of seven persons, each having special knowledge of some industry, public utility, or the development of some natural resource.

A committee of physicians was asked to present to the president names of medical men for membership on the advisory commission, and Dr. Franklin H. Martin of Chicago was selected.

THE ADVISORY COMMISSION.

The organization of the council and of the Advisory Commission provides that each member of the Advisory Commission shall gather about himself for the effective co-ordination of the activities he represents a committee or board consisting of representatives of governmental departments as well as civilians.

The Medical Committee, of which Dr. Franklin H. Martin is chairman, consists of William C. Gorgas, surgeon general of the U. S. Army; William C. Braisted, surgeon general of the U. S. Navy; Rupert Blue, surgeon general of the U. S. Public Health Service; Col. Jefferson R. Kean, director general of military relief of the American Red Cross; Dr. William H. Welch, member of the National Council of Research; Dr. William J. Mayo, chairman of the Committee of American Physicians for Medical Preparedness, and Dr. Frank F. Simpson, chief of the Medical Section of the Council of National Defense.

COMPONENT PARTS OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR MEDICAL PREPAREDNESS.

National and State Committees.—In April, 1916, the national committee was constituted by the presidents of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and the American College of Surgeons. That committee undertook the responsible duty of formulating plans whereby the civilian medical resources of the United States might be ascertained and coordinated for such purposes as might be required by the federal government.

The national committee appointed a state committee of nine men in each state of the Union. The presidents and secretaries of the various state medical associations are ex officio members of their respective state committees. It was contemplated that at the proper time committees would be perfected in each county of the country. That time has now come, and county committees are being rapidly organized. The state committees are expected to select the county committees and to supervise their formation.

DUTIES OF COUNTY COMMITTEES.

From time to time, specific duties will be assigned to the various state and county committees. These county committees are urged to take prompt action at this time in accordance with the following:

1. That these committees cooperate with the national and state committees of the Committee of American Physicians for Medical Preparedness to make available needful information regarding the civilian medical resources of their communities, and to coordinate civilian medical activities for prompt mobilization in case of need.

2. That they secure applicants:

(*a*) For the Army Medical Corps. For the full complement of troops already authorized by Congress, the regular army needs about 1,200 additional medical officers. If a million men are called, a corresponding increase will be required. (*b*) For the Medical Officers' Reserve Corps, for which from 20,000 to 30,000 medical reserve officers should be enrolled. (*c*) For the Naval Medical Corps, which needs about 350 additional officers. (*d*) For the Coast Defense Reserve Corps of the Navy, for which several hundred high-class reserve medical officers are desired. (*e*) For the National Guard, such numbers as may be required to bring your local National Guard to full strength.

Physicians recommended for service in national defense must be of the highest type. Medical officers who go to field duty should be under the age of 45.

3. That they cooperate, individually and collectively, with the Medical Department of the Army, Navy and Public Health Service and with the Council of National Defense.

4. That they cooperate with the Red Cross in bringing that organization to the point of highest efficiency.

ACTIVITIES OF THE COMMITTEE OF AMERICAN PHYSICIANS

Some of the activities which have either been completed or are well under way are:

1. Some 20,000 medical men selected from all parts of the country have been classified according to the training and the kinds of work which they do best.

2. An inventory of hospitals and other medical institutions is well under way.

3. It has been the policy of the Committee of American Physicians to aid the American Red Cross in bringing its medical department to the point of highest efficiency. With that in view, the members of the National Committee of the Committee of American Physicians became members of the national committee of the medical department of the American Red Cross; most of the members of the various state committees of the Committee of American Physicians were also made members of the state committee of the American Red Cross, and the various county committees will be expected to cooperate in carrying out the plans adopted by the two organizations.

4. The establishment of military training for senior medical students in a large percentage of the high grade medical schools of the country.

5. The establishment of more effective military training for hospital groups for members of the Medical Officers Reserve Corps, for dental students, and others.

6. The appointment of a committee for the standardization of medical and surgical supplies and equipment. The purpose of this work is to designate a list of articles essential to the successful conduct of civilian and military medical and surgical activities so that if it should become necessary to curtail production all of the energies of the drug and instrument makers shall be devoted to providing the necessary articles, rather than those which, however desirable, are not essential. On this standardization committee are representatives of the army, the navy, the Public Health Service, the Red Cross, the Council of National Defense and a number of distinguished members of the various specialties of civilian medicine.

7. Much valuable information supplied by medical and other observers who have worked in the war zones of Europe is being gathered and classified.

8. The presidents of important national medical organizations of the country have been requested to suggest to the medical section of the Council of National Defense the kinds of work which members of those organizations are best fitted to perform, and to suggest plans whereby their activities and resources might be utilized to advantage. This request does not contemplate an inventory and organization of these resources. Suggestions offered by the various organizations will be carefully considered and such as conform to the plans of the Council of National Defense and can be utilized to advantage will be adopted, when the various organizations will be requested to cooperate in perfecting plans of the Council of National Defense.

Injuries and strains about the insertion of the tendo Achillis are marked by pain about the back of the heel which is aggravated by walking and relieved by rest, but the pain recurs again if the patient is tempted to take exercise.

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NEW YORK, MAY, 1917

The Present Duty of Physicians.

We are entering upon parlous times. Despite the lack of the hurly-burly that is supposed to accompany hostilities, the United States is in a state of war with foreign powers and no man can accurately foretell what the future has in store of this country of ours.

There is, unfortunately, a feeling among us, fostered, perchance, by our hitherto splendid isolation, that in case of war one American soldier can easily defeat any three alien enemies. Such arrant nonsense as this has been in large measure responsible for the sad and unnecessary state of unpreparedness in which the nation finds itself today.

It is not within our province to attempt to place the blame for this lamentable condition of affairs, but to see how the medical profession can do its share in preparedness.

An army needs surgeons, not medical men who are alone trained along the lines of surgical procedure or camp sanitation or diagnosis and treatment, but surgeons who know military medicine and medical military procedure. Well informed officers realize that clothing a civilian medical man in a uniform and giving him a major's commission does not make him an army surgeon. It may only, if we can accept the word of some of our British medical military men, make a general nuisance of him; for the civilian, despite high educational and professional qualifications, is usually sadly lacking in these fundamentals which the army surgeon must of necessity possess.

The President and the Congress at this writing contemplate calling out 1,000,000 men and where will the medical officers come from?

According to European army authorities there must be at least ten medical officers to every 1,000 men and more must be continually trained to make up the wastage, which in the present conflict has been enormous.

At that ratio we shall need as soon as this army is mustered into Federal service 10,000 medical officers. There are now less than 600 in the regular army. Possibly the National Guard has twice that number, but a considerable proportion of the militia officers are new and many more have had no real field experience.

The Medical Reserve Corps of the army numbers about 3,000 men on paper. Some of these are too old for actual service and not over 10 per cent of these men have had any field training. Therefore, to take care of the welfare of 1,000,000 men we have at best not over 2,100 physicians who have had any training to speak of.

In short, we must immediately train, with this million soldiers, 8,000 medical officers and then as many more to fill in the gaps that will show when fighting begins.

These figures include only army requirements. If this war is strong in naval activities, the less than 500 naval medical officers must be augmented to 5,000 at least.

All of these officers must come from the ranks of the medical profession as at present constituted. We cannot depend upon fourth year medical students who will graduate next month, or upon hospital interns, but on the men, general practitioners and specialists alike, who are in the thick of the fight in civil practice.

Many a physician balks at the idea of giving up his good practice, which he has worked hard to establish and allowing some one else to step into that coveted hospital appointment he has just earned after years of patient effort.

But he must bear in mind that war is no Sunday school picnic, but serious business, hellish business, as Sherman observed, and it calls for sacrifice on the part of every good citizen. Physicians always have and always will sacrifice and the better element among them will come forward when the President asks them, but these brave men must not be sacrificed that the yellow-bellies, who seek to serve alone their own selfish interests, can stay at home and reap rich reward. If the war is long continued the country will be under military control and conscription will seek out the slacker, medical or lay, but all patriotic physicians hope the day will never come when they are weighed in the scales of public opinion and found wanting in true Americanism.

It is the duty of all able bodied medical men to offer their services to the medical reserve corps of the army or navy or to the National Guard, so that the fighting men of the country may have proper medical and surgical attention.

This is the time when the bravest and best profession among men may show the world that it is willing to sacrifice and die, if necessary, that the cause of freedom and democracy may live on.

In the Clinical Twilight Zone.

We feel proud of ourselves nowadays when we have completed a clinical study of a case and made a definite diagnostic pronouncement. That is the modern goal. We narrow and narrow the tentative opinions until at last we say: Schönlein's disease.

We fancy that the clinician of the future will revel in borderland states. Abortive infections will interest him greatly. Great treatises will be written dealing with evanescent because overcome infections. For us they possess mainly an academic interest and the field seems hopelessly difficult.

But even now the abortive pneumonia is recognized, and the gonorrhea that mysteriously clears up in a few days is identified. Abortive coryzas and influenzas are frequently observed. We can even speak of transient tuberculosis. Sometimes the rash of scarlatina stays out just long enough for us to see it, and is gone a few hours after our visit.

The indispositions that we do not diagnose, and which disappear rapidly, constitute a vast and important, but nosologically inchoate, clinical group, which to the physician of the future will announce themselves blatantly, so to speak.

The recognition of the whole group of abortive infections is important because they are communicable—just as communicable as fully developed infections; this we know from long experience in the case of scarlatina.

But among these indispositions are not only abortive types of familiar infections, but many unknown entities that will yet be household words in the medical temple.

One fact we have recognized very clearly, and that is the common occurrence of poliomyelitis in children without paralytic sequelæ of any note. And these are the very cases that are at the bottom of infantile paralysis epidemicity.

The Perils of New Methods.

We are familiar with the injuries worked upon the pioneers in *x*-ray diagnosis and therapy in respect of burns, dermatoses and more serious lesions, sometimes involving such consequences as amputation and even death.

In the use of a mysterious agency such as the *x*-ray, the sterilizing effects upon the pioneers' sexual organs, and the other consequences that we have mentioned, have all been physical.

It may be just as well to bear in mind the possible effects of psychoanalysis upon some of the minds employing it. There can be hardly any doubt that there are moral effects upon the practitioner at times that represent injuries analogous to those of the *x*-rays, but far more tragic because of their non-physical character.

We make bold to say that such unwholesome effects do not necessarily occur only in those of abnormal mental constitution, any more than it would be claimed that injuries from injudicious use of the *x*-ray have occurred only in those specially predisposed.

We can now protect ourselves against the injurious effects of the *x*-ray; we know how to do so.

But how can we ever protect ourselves against the putridities evolved in the course of psychoanalysis?

The Voluntary Induction of Deafness.

There are many devices for aiding the function of hearing. It seems to us that there is a real need for a device which will enable us, at certain times, to prevent ourselves from hearing. We submit this proposal to Mr. Edison with our prayers for his success should he be disposed to take the matter up.

With all of us there are times when we would wish to blot out somebody's yawp. It might be chattering neighbors at the movies, or between the acts at the theatre, whom we would wish to isolate. It might be the soap box orator at the corner. It might be one of the more offensive sex fanatics at a meeting. Other uses will occur to the reader.

We don't know what the ear men's opinion would be, but it seems to us that in our excessively noisy city life the ears could well stand an occasional rest, even if there were no bores to take into account. And would not people whose hearing is already more or less impaired gain a bit in acuity after such rests? Would not some people sleep better whose rest is now disturbed by slight noises? Would not those of impaired nervous tone improve if occasionally insulated, so to speak, especially in the course of a rest cure?

It is by no means a simple problem. Simply closing the external auditory canals does not shut out all sounds.

We can shut our eyes. Let us find a way to shut our ears.

Please, Mr. Edison, think it over.

Charlatanry Indebted to a Scientist.

The influence of Sir Oliver Lodge's book "Raymond," which purports to be a record of "communications" from Sir Oliver's dead son, is making much money for the English mediums. "Charlatanry never had so fine a chance, and charlatanry is not losing its chance, either. . . . To extort money from the credulity of the bereaved, to raise false hopes—at a price—in the minds and hearts of those who have lost husbands, sons, and brothers—these are not heroic enterprises, and the world will be a better, happier place when they are resolutely suppressed by law."—(*The Daily Mail*, London.)

The Case of Joan of Arc: Was the Maid Insane?

According to the evidence of a number of witnesses, Joan of Arc never menstruated. She always clung to male attire from the time of her visit to Robert of Baudricourt, at about the age of eighteen. She was tall and comely, with dark hair, and her voice is described as sweet. She was very reticent about speaking, and was readily moved to tears. Her demeanor was graceful and modest, and her countenance cheerful. She possessed very great physical endurance, and was skilful at riding and in the use of weapons. At handling artillery she was an expert. She wore the heaviest of armor. When wounded by an arrow above the breast at Orleans, she was afraid, and wept. She tried to discourage gambling, and would not tolerate swearing. She had a special horror of plundering. When she saw the English soldiers lying wounded she had great compassion. When Glansdale the English captain who had coarsely abused her, fell into the Loire trying to escape, and was drowned, she began to weep for his soul. Joan took a truly feminine dislike to the girls who followed the camp, and broke the sword of Fierbois over the back of a courtesan who was following her men-at-arms. She was skilful at sewing.

Her visions began about the age of thirteen, in other words, at the age of puberty. It is possible that the failure of menstruation was in some way related to her psychic disturbances.

Masculinity and feminity, as we have seen, were curiously blended in her. Thus she was fitted to play her great part not only in point of psychical adaptation, but in point of sexual make-up.

To the exacting demands of her extraordinary environment she was thus perfectly adapted. Taking into account the times, the issues and the prevailing beliefs in good and evil spirits, she must be regarded as sane for if we hold sanity to consist mainly in adequate adaptation to environment, who ever adapted himself better than Joan to a given set of trying circumstances and achieved greater ends?

Trench Tuberculosis.

In his report to the Rockefeller Foundation on the tuberculosis problem along the Allies' front, Dr. Biggs states that the disease has made great inroads among the French. He recommends immediate relief measures to combat the plague.

We should think that long continued trench life would exact an inevitable toll, so marked are the unhygienic features.

So modern war gives us its peculiar morbidity.

What, we wonder, will be the character of future wars in respect of special pathology due to special military factors?

Slaves of the Clock.

We think the point made by the *Sun* with respect to daylight saving is a good one, namely, that any one who wants more daylight can have it by rising earlier. So far as lighting bills are concerned, the *Sun* reminds us that getting up early would not cause the sun to appear a whit sooner, and that artificial light would be required.

We don't want our workers' evenings curtailed for many reasons. Daylight saving would probably lead to longer working hours, despite the protestations of its promoters that such is not their desire.

Daylight saving appears to be another device to intensify the industrial hustle.

Pretty soon nothing will be voluntary. Voluntary health insurance would be rational, as in Switzerland, France and Belgium, but no, the accelerators insist that it must be compulsory.

Curious Light on the Motives of One Birth-Control Agitator.

When the legal arguments were over the actual presentation of the State's case took but a short time. Mrs. Whitehurst testified to what she had heard Mrs. Sanger say, and described the various instruments in the rooms. She said that once Mrs. Sanger pointed to the crowd outside the door and asked:

"Can you blame me for desiring to obliterate that race?"—New York *Sun*, January 30, 1917.

Difference in Typhoid Types.

Dr. Jacob has analyzed (*Muench. med. Woch.*, April 25th, 1916) two series of cases of typhoid fever among German soldiers in the first and second year of the war, respectively. Of 100 cases under treatment from November, 1914, to the summer of 1915, the majority were severe or fairly severe; only about a quarter were relatively benign. Relapses occurred in 15 cases, and in almost a fifth of the total there were complications, many very severe. Most of these patients had either not been inoculated or inoculation had been performed during the incubation or after the onset of the disease. In the second series, from October 1st, 1915, to the beginning of February, 1916, there were 200 cases. In only about one-quarter of these was the course of the disease severe or fairly severe; the remainder were slight cases. The proportion of relapses in the second series was lower (6.5 per cent.).

Taken as a whole, the clinical picture of the second series was quite different from that of the first series; the type was that of the so-called abortive typhoid fever. Dr. Jacob rejects the hypothesis that this improvement was due to a decline in the virulence of the infecting strains of typhoid bacilli, on the ground that while the severity of typhoid fever has gradually abated in the German army in the course of the war, a recent outbreak among uninoculated civilians was as malignant as the outbreaks among soldiers early in the war. In this outbreak among civilians there were over 1,000 cases, and the mortality was over 16 per cent. The conclusion is that prophylactic inoculation alone is responsible for the reduction of the severity, complications, and mortality of typhoid fever.—(*Brit. Med. Jour.*, Dec. 9, 1916.)

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

The Diagnostics of Nose Blowing.

We confess that our title has a suggestion of Rabelais in it, but what of that—Rabelais contributed some valuable thoughts to medicine.

Who has not been struck by the varied pitch and tone of blown noses? Is not this a fascinating field of research? Upon second thought we think that Charles Lamb could have done better justice to our theme than Rabelais. The thing is quite in Lamb's whimsical vein. Since, however, both Lamb and Rabelais overlooked this important phase of life, we must attempt to deal with it. We have at least one advantage over those classic writers—we know a little about the anatomy and physiology and afflictions of the nose.

There is much personality about the nasal blast of many people. You can tell your friends when they emit a nasal SOS signal. There is the nasal yodel, the sad piccolo note, and the alarming blare. There is the abrupt honk, and rarely a flute-like intonation, awakening sensations so delightful that to one's mind, as one listens entranced, come those lovely lines:

Hark! hark! the lark at Heaven's gate sings.

And then there is the far-flung yet silvery blast that reaches auditory receivers at incredible distances. Its quality is well described in:

O hark, O hear! how thin and clear,
And thinner, clearer, farther going!
O sweet and far from cliff and scar
The horns of Elfland faintly blowing!
Blow, let us hear the purple glens replying:
Blow, bugle; answer, echoes, dying, dying, dying.

We have heard sad, plaintive trills in a minor key that seemed to say to us:

Mine are the winds above,
Mine are the caves below,
Mine are the dead of yesterday
And the dead of long ago!

For such melancholy nasal voices we do not care overmuch, unless we happen to be in the mood. There are indeed times when to the soloist we may regretfully say:

Adieu! adieu! thy plaintive anthem fades
Past the near meadows, over the still stream,
Up the hillside; and now 't is buried deep
In the next valley-glades:
Was it a vision or a waking dream?
Fled is that music,—do I wake or sleep?

And there may be a certain wistful beauty at times in the note of a nose which, like a nightingale, sings

Her sorrows thro' the night; and on the bough
Sole-sitting, still at every dying fall
Takes up again her lamentable strain
Of winding woe, till wide around the woods
Sing to her song, and with her wail resound.

The bass notes of charming and melodious character which are sometimes wafted to the charmed ear have at times the sonorous qualities of a well-sung "Rocked in the Cradle of the Deep."

As though from angels and nightingales comes a sweet whispering from the sinuses, as fit to charm in lovemaking as Strephon's very voice. Of it we may say:

Love gives it energy, love gave it birth.
Where, on thy dewy wing,
Where art thou journeying?
Thy lay is in heaven, thy love is on earth.

A soothing, somnifacient, opiate, siren-like note that we love full well, like the hum of bees in summer, invites one to sleep; but in the early morning one likes

to hear the sharp, incisive, awakening blast calling to the day's activities, like the

Pibroch of Donuil Dhu,
Pibroch of Donuil,
Wake thy wild voice anew,
Summon Clan Conuil.
Come away, come away,
Hark to the summons!
Come in your war array,
Gentles and commons.

Marry! may a man not be known and much inferred as to his character and condition by the manner in which he blows a blast upon the olfactory horn?

Condition? Yes. Who does not know the feeble effort of the neurasthenic? The neurasthenic voice is familiar; so shall the timbre of the nose also connote his presence.

How happens it that the nose man's diagnostic acumen has not been attuned to the acoustic phase of his art? Is it not matter of reproach that he has not as yet learned to distinguish by sound variations those familiar lesions yclept deflected septum, enlargement of the turbinates, adenoids and sinus disease? Why should not the presence of a polyp denote itself to him by the trumpet's treble trill?

It may yet happen that the rhinologist's examination will begin, not with electric illumination and metallic armamentaria, but with the simple request to blow the nose, wherefrom much will be deduced that is not elicited by present-day methods. Mayhap the "sinus sniff" or the "septal snort" will come to mean as much as "McBurney's point" in appendicitis, and to be as permanently embalmed in the jargon of medicine.

The new school of rhinology shall study counterpoint and harmony, and through the scrutiny of nose blowing shall be born a new appreciation of æsthetics.

Rhinologists will even now tell you that if people blew their noses artistically, and with due regard for the principles of beauty, there would be but little aural pathology.

Thus even disease may be made to succumb to æsthetics.

A Birth Control Decision.

The following decision was recently handed down by Mr. Justice Kelby:

The defendant is charged with a violation of section 1142 of the Penal Law of this state in that "she sold, gave away * * * an article and instrument of indecent and immoral use, * * * namely, for the prevention of conception." The action is pending in the Court of Special Sessions, and the defendant now moves for a certificate that said charge be prosecuted by indictment, with the resultant trial by jury. Upon the argument of the motion counsel for defendant admitted that one of the articles prohibited by the statute had been sold to a woman known to be a detective; that a two-dollar bill had been accepted in payment and that the bill had been exhibited about the premises with a written statement upon it that it had been received from a detective. It would thus appear that there is no issue of fact concerning the crime charged. Counsel's main argument is that defendant had a right to do what she did and that the people of this state had no right to enact through their Legislature any law which prohibits the sale of articles, instruments or drugs calculated to prevent women from having children. A right of copulation without conception is asserted upon behalf of women in general; defendant claims this isa personal right that cannot be invaded by the Legislature forbidding the sale of articles necessary to the free enjoyment of such right.

The prohibition in the statute, section 1142, termed generally "indecent articles," is modified by section 1145. The latter section in express terms states that "an article or instrument used or applied by physicians lawfully practicing, or by their direction or prescription, for the cure or prevention of disease, is not an article of indecent or immoral nature or use within this article. The supplying of such articles to such physicians, or by their direction or prescription, is not an offense under this article." This amounts to a declaration by the Legislature that conception shall not be prevented except when physicians in good faith believe it to be inimical to the health of the particular individual under a physician's care. But this construction of the statute is not satisfactory to the defendant, because through her counsel it is argued that, apart from health, a woman has the right to copulate with a feeling of security that there will be no resulting conception. Or as counsel puts it: "She is denied her absolute right of enjoyment of intercourse unless the act be so conducted that pregnancy be the result of the exercise. This clearly is an infringement upon her free exercise of conscience and pursuit of happiness." Indeed, counsel goes further and says the statute "makes mandatory upon married persons, *or even single persons*, having sexual intercourse that which it is contended rests solely and entirely in their discretion and conscience and compels them to exercise their conscience in a manner contrary to their personal desires, and thus clearly interferes with their happiness." So that a right of copulation of single persons without fear of resulting conception is asserted. It seems clear to me that the Legislature in its broad power to legislate on matters in aid of public morals clearly has the right to prevent the sale of these goods to unmarried people. Moral uprightness and fortitude is not now subjected to the temptation of fornication without fear of conception. That men and women and boys and girls lacking in moral stamina are deterred from fornication by the fear of detection through the pregnancy of the female, cannot be doubted. The legislative act deals with all kinds of people—moral, immoral, strong and weak. Surely the Legislature has a right to declare certain acts illegal which are in conflict with the moral sense of the people. While fornication is not a crime, it surely offends the moral sense of a large portion of the people of this state. Nor is it to be doubted, in my opinion, that the Legislature has the power to declare that articles should not be used to prevent conception of married women except in cases where attending physicians believe that pregnancy would be dangerous to the health of the woman. There is no contention that the defendant is a licensed physician; she rather appears with her associates as self-constituted agents of womankind asserting alleged rights that are not entertained by many women. It is a prime right of a state to pass laws that tend to aid its continuance. An attack is made upon one of the justices of the Court of Special Sessions for alleged bias. He told counsel that the court of which he was a member had held the act constitutional and that he would follow that ruling, and, furthermore, that testimony of doctors was in his opinion inadmissible on the issue. This was simply stating that he would enforce the laws of this state which he has sworn to perform. There is no legal ground for the charge of bias. The question of constitutionality of the statute can be determined in the Special Sessions, and if the decision be adverse to defendant it can be reviewed upon appeal quite as readily as if the trial were in the Supreme Court. The motion is therefore denied.—New York *Law Journal.*

The Sex-Obsessed Writer.

The sex-obsessed writer now so much in evidence, seen in the light of Freudian psychology, is one whose actual sexual life is a failure, and who attempts to sublimate his libido vicariously. Instead of sublimating along creative lines he is obliged to preoccupy himself with sex matters, for the simple reason that he possesses no creative powers and is therefore thrown back upon the only thing that appeals to his limited mind.

When we say that the sexual life of such a writer has been, obviously, a failure, we do not, of course, mean that he has had no sexual life. His life may have been a sex orgy—greatest failure of all. The sex-orgiast knows less of love than any other man. He is, in fact, an erotic defective.

More commonly, however, the sex-obsessed writer is one who has cried for the moon, sexually speaking, and has been obliged, through the various exigencies of life, to make ludicrous compromises. The incongruities noted in his domestic entourage are apt to be, in popular parlance, a "scream."

Such a man comes no nearer to a realization and experience of love than does a moron to the message of Emerson; and yet he is crazy about sex.

Then lastly there is the freak of whom Louis Untermeyer has written:

Fire he sings of—fierce and poignant flame;
Passion that bids a timid world be bold,
And Love that rides the tempest uncontrolled,
Scorning all customs with a greater claim.
Yet, underneath the ink, his soul is staid;
Calm, even calculating, shrewd and cold.
His pain lives but in print; his tears are rolled
And packed in small, neat lyrics for the trade.

He hawks his passions of assorted brands;
Romantic toys and tinsels of desire;
Marionettes that plead as he commands;
Rockets that sputter feebly, and expire. * * *
And he is pleased and proud, and warms his hands
At the pale fireworks he takes for fire.

When Political Frightfulness Enters and Directs the Clinic.

Under bone-dry prohibition it would appear that the clinical use of alcohol would be barred.

Those of us who have some conception of the anociative value of alcohol in certain conditions would regret to have such a drug withdrawn utterly from our hands.

What a strange turn of events such forcible withdrawal would be.

Suppose by some similar turn of events the use of a drug like digitalis were forbidden us, for social reasons having nothing to do with our clinical work. What would be our feeling and what our action?

We feel rather daring in expressing such views as the foregoing. They are honestly conceived, but nowadays the subject cannot be discussed rationally without the risk of dark suspicions falling upon one.

Well, we dare to stand with Dr. Meltzer, who still believes that alcohol, while often a curse in health, is frequently a blessing in sickness.

The Suspension of Medical Brotherhood.

In the *Journal of the American Medical Association* of March 24, 1917, the following letter from the pen of Dr. S. J. Meltzer appeared:

In *The Journal*, July 31, 1915, an appeal to members of the medical profession was published which was signed by a committee composed of about 150 members of the leading medical men of this country. The attention of the profession was called to the facts that no discovery in medical science has been utilized by any of the belligerents in the present European war for the purpose of destroying the enemy; that the services of medical men in each of the warring countries consists exclusively in ministering to the sick and to the injured, and finally that in these humanitarian services friends and foes are treated alike. This appeal led to the establishment of the Medical Brotherhood, which contains at present about 16,000 members, all of whom are American citizens with the exception of Sir Wilfred Grenfell. The vast majority of members belong to the American Medical Association. Not a single individual has withdrawn his membership. Many prominent men from other neutral countries asked to be enrolled in our organization. In most of these countries, organizations similar to ours were established.

The purpose of my present communication is to state that on the second of last month, that is, as soon as the last German note on its U-boat policy became known, and before our President delivered his address before Congress, *I suspended sending out our literature.* It seemed quite evident to me that the German note would lead to a serious tension between our country and the central powers and perhaps even to war. A transitional stage of suspense and confusion was bound to come, and it seemed to me to be the duty of every citizen to avoid anything which might be misconstrued. It was conceivable that the activities of the Medical Brotherhood might be interpreted by some as being unpatriotic and not in line with the duties of a citizen to his country and its government.

For this temporary suspesion of our activities the president of the brotherhood takes the entire responsibility.

S. J. Meltzer, M. D., New York.
President of the Medical Brotherhood.

What Say the Reformers to This?

"Some want to eat and some don't. Even whiskey-and-soda is not unknown. A chap came over here the other day who would have a cigar. That's finished them, he thought. But it hadn't finished them at all. Instantly they manufactured a thing that looked like a cigar out of essences and ethers and gases, and the chap began to smoke it."—From Sir Oliver Lodge's "Raymond," a record of the author's "communications" with his dead son.

A Litany.

From g. u. "specialists" who open prostatic abscesses through the rectum; from birth-control propagandists with condoms to sell, and from anatomical shoes; from societies for moral prophylaxis, and from bathing cranks; from anti-vivisectionists, and from the spirochætæ; from eugenists who ought never to have been born themselves, and from malicious animal magnetism; from group-diagnosis, and from rubber heels; from the A.A.L.L., and from the consultant who talks to the men who call him in as though they were students; from ill-nourished dieticians, and from ethical advertisers; from medical writers and speakers preoccupied with sex, and from lay scientists in alcoholism; from the cash-register type of practioner, and from patients who die in the office; from scientific pedants, and from ununited fractures; from doctors who peddle mercury tablets to luetic patients, and from glaucoma following cataract extraction; from damage to the bladder during pubiotomy, and from medical highbrows—good Lord, deliver us!

The Cause of Carcinoma.

A. E. Rockey proposes the hypothesis that cancer is caused by a defensive process of the tissue-cells to a great variety of irritations; and that there is no specific external cause for cancer. There is a normal antagonism between cells that are of mesoblastic, and those of epiblastic, origin; which prevents them from intermingling under the ordinary circumstances of wound healing.

The defensive reaction to any irritation that falls short of the destruction of cells is an active karyokinesis. The more active this becomes the more nearly the cells approach the embryonal type and become irregular in their mitosis. This irregularity is the result of the struggle for existence, in which they fail to produce perfect cells. This is true both of the epithelial and the connective-tissue cells. Like allies in common defense, these young and actively growing cells lose their normal antagonism for each other and more readily mingle. The young epithelial cells become engulfed in those of the connective tissue; and lose their proper position on the surface. The environment which makes for normal development of the cells is lacking. They belong on the surface; and cannot in the depths of the tissues attain anatomic perfection, and physiologic activity. They retain the excessive karyokinetic tendency of their immediate progenitors; and can only grow and reproduce. This tendency, which was at first a defense growth against the irritation which destroyed the basement membrane, thus produces cancer.

There can be no single external specific cause, either microbic or protozoan, for cancer, which has its origin in such a variety of irritations as those found in smokers' cancer of the mouth and lip, betel-nut chewers' cancer of the mouth, chimney-sweeps' cancer, and cancer produced by x-ray irritations, slow burns, as those of the abdominal wall in the natives of Thibet; cancer of the stomach following ulcer, or those of the colon and rectum at the dependent portions, where fæcal accumulations produce chronic irritations. All such irritations may, when they are of sufficient intensity to destroy the basement membrane, provoke a defensive reaction in the cells, which reduces them to an embryonal form, and karyokinetic activity diminishes their normal antagonism to each other, and thus causes cancer. —(*Surg., Gynec. & Obst.*, 1916, xxii, 171.)

Gruels are a contributing factor in the cause of diarrhea in very young infants when given in milk and sugar mixtures.

The American Association of Clinical Research.

JAMES KRAUSS, M. D., Permanent Secretary and Editor.

FOOD VERSUS MEDICINE IN RELATION TO THE PUBLIC HEALTH.*

ALFRED W. MCCANN, B. A.,
New York.

Fifty years ago Roussel wrote, "Without dietetic measures all remedies fail. When drugs and good foods are simultaneously employed it is to the food that the curative action belongs. The drug exercises simply an adjuvant action and is without proved efficacy except against secondary changes or accidental complications."

Forty-eight years later, in reprint No. 228 from the *U. S. Public Health Reports* of October 23, 1914, dealing with the etiology of pellagra, appears the following:

"It will be found that in those instances where there seems to be reason for believing that the favorable results claimed for this or that drug appear to have a substantial basis in fact, the credit usually claimed for the medicine alone must, to say the least, be shared by the modification in the diet that is invariably found to have been made."

During the fifty years that have elapsed since 1866 the medical profession has sought diligently through fields of experimentation and speculation to locate the origin of many human infirmities.

At one extreme stood a group of diseases which baffled every effort of the investigator to trace their causes or to apply a remedy. In this group are to be named beri-beri, pellagra, scurvy, neuritis, acidosis, edema, "nervous prostration," anemia.

From time to time the medical world was cheered by reports of unusually favorable results following the administration of this or that form of arsenic, potassium, iron, phosphorus or other medicine. Invariably the hope inspired by these announcements was soon abandoned and the perplexing enigma attacked from another angle. Failure after failure blot the record of the praiseworthy efforts of these fifty years. Still the medical profession refused to heed the hints which constantly sprang from its own continued disappointments in tracing the etiology of these diseases. The conclusions of Roussel had no meaning for the investigator.

At the other extreme stood a group of phenomena growing out of morbid conditions which excited little interest and inspired less speculation. Many of these phenomena gradually forced their way into the list of recognizable symptoms the proper understanding of which to the skillful practitioner points the way to an early diabetes, Bright's disease, heart disease, appendicitis, hardening of the arteries, tuberculosis or cancer, including the hundred and one disorders vaguely described as constipation, dyspepsia and rheumatism.

Between these two extremes lay a wide trail dotted with a luxuriant variety of commonplace infirmities described as restlessness, insomnia, digestive disturbances, lack of endurance, poor wind, feeble vitality, low resistance, tendency to catch cold, decayed teeth, flabby muscles, pimpled skin, sallow complexion, inflamed eyelids, catarrh, loss of muscle tone, lack of energy, the condition described as "all run down," water-logged tissues, abnormal gestation followed by eventful delivery, faulty lactation, and all the other orgies of disturbed equilibrium which have proved a veritable Plutus mine for the patent medicine vendor. Academies of medicine, richly endowed by legislative enactment or private philanthropy, have trudged laboriously from one extreme to the other noting little on the way except that whereas some men seemed to be one hundred per cent. efficient others were but ten per cent. efficient.

During all these years the pharmacopoeia grew in size, while from os to anus there marched a never-ending parade of Latinized compounds more or less physiologically active. Rarely did the medical profession pause in its zigzagging course through the refinements and intricacies of attenuated theories to heed the voice of this or that lonely investigator whose labors persisted in leading him to the conviction that all the diseases and disorders noted here were due to "under-nourishment," based on an abundance of food of the wrong kind or a deficiency of food of the right kind.

Satisfied that proteins, carbohydrates, fats and calories constituted all that was to be known of the nature and property of foods, the researchers of the medical profession ignored the commercial development of the food industry and closed their minds to the true meaning of metabolism. No attention was given to the needs of the body for the various organic compounds, salts and colloids of calcium, iron, phosphorus, potassium, magnesium, manganese, sodium, sulphur, silicon, iodine, etc., which are found only in unrefined food.

The fact that acidosis, even of the mildest type, is the forerunner of tuberculosis was not recognized. That calcium starvation might be directly related to tuberculosis was not suspected. The work of Scandola in demonstrating that nothing promotes the elimination of calcium more than the use of decalcified foods remained unheeded. The work of Drennin, who established the fact that the withdrawal of calcium caused a fatty infiltration and later a fatty degeneration of the liver cells, did not lift the veil. The work of Ott and Crofton, who showed that twenty times the normal amount of calcium salts is excreted through the feces in tuberculosis, was pigeon-holed and forgotten. The very possibility that the withdrawal of food calcium from the body could destroy the defence of the tissues against the invasion of the tubercle bacilli opened up no new channels of speculation, although it was recognized that nature's method of combating tuberculosis is by calcification of the tubercular area.

The gradual recognition of the fact that where the mother is deprived of a sufficiency of food calcium the fetus is handicapped by lime deficiency as a result of which its bones do not grow normally, its teeth do not erupt properly and later decay quickly, did not disclose the truth concerning the significance to health not only of calcium, but of all the other food minerals with which calcium is associated. It was known then, as it is known now, that man is continually in the presence of disease germs; that almost daily he is exposed to contagious or infectious diseases. It was also known that the body in health is able to protect itself and ward off the causal agents of disease. It was also known that the severity of the disease is determined by the intensity of the cause and by the state of the organism and its power of defence. It was known that the first general biological law or general attribute of living matter is that of self-preservation.

It was known that the first biological acts of living protoplasm are nutritional. It was known that for perfect health, for the one hundred per cent. efficient

*Read before the Eighth Annual Meeting of the American Association of Clinical Research, on September 28, 1916, at New York.

man, there must be complete appropriation, assimilation and elimination. It was known then, as now, that it is impossible to prevent the entrance of bacteria into the digestive tract with food. But, it was also known then, as it is known now, that against this invasion the normal human individual is protected by natural immunity. It was known that the organism is supplied with powers of nutrition which induce resistance enabling it to protect itself by the destruction, by the counteraction and by the elimination of deleterious agents and thus, by adaptation, provide for the reestablishment of the disturbed equilibrium. It was admitted in a general way that the creation of immunity as the greatest defence of the organism against infection depended largely upon food, but to what property, factor, element or group of elements found in that food no attention was given.

When Kayser showed in his review of the importance of calcium salts for the therapy of internal affections that these salts influence the excitability of the nervous system and are, therefore, indicated in internal medicine, especially for tetany, epilepsy, hay fever and asthma, his efforts failed to break through into the great truth that lay so near. Starling and Foster demonstrated in vain that animals fed on food robbed of its salts and colloids die sooner than if not fed at all. Takaki, Chamberlain and Vedder made little impression on the medical profession through their demonstrations that the mineral deficiency of refined food was responsible for a high mortality among breast-fed infants and that mothers' milk lacks mineral matter necessary to the health of her child in accordance with the mineral deficiency of her food. Weigert did not bring about a change in the orthodox medical attitude towards foodstuffs by his demonstrations that tubercular children succumb more quickly when nourished with demineralized sugars and starches, the water content of their organism being inversely proportioned to their natural immunity. When he established the fact that a diet of sugars and starches, free from food minerals, increased unnecessarily the amount of water in the tissues and prompted a rapid rise in the body weight, children so fed appearing plump, round and well-nourished but actually being water-logged and showing slight resistance against infection, he inspired no new group of investigators to undertake the work of determining just what food is.

When Breisacher demonstrated that the poisonous end-products of meat digestion will kill quickly a dog if the thyroid gland is removed, although after its removal the life of the animal can be indefinitely prolonged on a diet of bread and milk, his work was accepted as establishing the function of the thyroid as a poison-destroyer. In the same manner the work of Plum and Kishi, in demonstrating through a series of experiments that the function of the thyroid gland is to neutralize the poisons derived from the putrefaction of albumen in the intestines, was accepted. But, the medical profession did not ask the question, "Upon what does the thyroid gland depend for the normal discharge of this natural function?" Hence another fact which lay close at hand but uninterpreted remained in obscurity. The medical profession knew vaguely that the thyroid gland in health was capable of secreting from natural food a complex organic compound of iodin. But, it was not observed that through the removal of such iodin from refined food the thyroid gland, failing to find the material through which it operates, also failed to perform its natural function.

When Seidell and Fenger proved through their experiments in the Union Stockyards at Chicago that the percentage of iodin found in the healthy thyroid of sheep and hogs was about three times as large between June and November, when the animals were allowed to feed naturally on green pasture, as the amount found between December and May, when they were fed on impoverished, commercial, by-product foodstuffs, little attention was given to their discovery except by the packers who found it more profitable to manufacture their thyroid extracts for medical use at such times. The fact that the thyroid gland was curiously noted to be larger during the months in which its low iodin content was observed did not indicate to the medical profession that there might be some relationship between a deficiency of food iodin and the swelling of the gland. It was known that in plant life in the absence of iron the development of chlorophyl did not take place. It was also known that in animal life in the absence of iron the development of hemoglobin failed. It was also known that without chlorophyl and hemoglobin there could be no vegetable or animal life. It was known that the chromatin substances, as well as the hemoglobin of the body most directly concerned with the processes of oxidation, secretion, reproduction and development depended upon the presence of iron, but it was not known that such iron was not the iron of the beef iron and wine superstition.

It was known that all analyses of proteins, the fibre of meat, the albumen of egg, the gluten of wheat, the casein of milk, revealed that sulphur in various combinations is an essential constituent of food, but it was not known that such sulphur was not the sulphur of the sulphur and molasses superstitition. It was known that phosphorus was found to be directly associated with the nucleus and that iron is always present with such phosphorus, but it was not known that such phosphorus was not the phosphate of the chemical laboratory or soda fountain. It was known that in plant life potassium is always connected with the construction of sugars and starches. It was known that magnesium has a distribution much like that of potassium and that with calcium one of its functions, which has been clearly established, is that it is active in neutralizing oxalic acid, a poison elaborated in the nutritional processes of vegetable through which it finds its way into animal life. It was known that the presence of potassium leads to a development of stems, flowers and fruits or to what may be regarded as the maturing of the plant, whereas in the absence of potassium the growth of the leaves is more directly favored but the crop remains backward and immature, but it was not suspected that a lack of food magnesium or potassium might profoundly influence the health and character of men and his offspring. It was known that oats mature less fully and completely in the absence of silicon, thus establishing evidence of its aid in the metabolism of that plant. It was known that manganese exerted a powerful influence on various oxidative processes, but it was not known that a deficiency of food silicon or manganese might morbidly affect the physiological equilibrium of man.

It was known that the effects of mineral deficiency in plant life were well marked, yet it did not occur to the medical profession that man might be reckless in the extreme when he permits the food of his children, through entirely unnecessary and useless processes, to be deprived of the food minerals essential to health and life. The medical profession did not ask,

in spite of the development of these facts, what effect upon the vigor of American childhood is exerted by the removal of these food minerals from the diet of the nation. It was known that when protein food from which the minerals have been removed by commercial processes or evil methods of cookery is introduced into the body it results in the elaboration of free sulphuric acid from the albumenoid sulphur and of free phosphoric acid from the many complex phosphorus compounds found normally in protein foods. It was also known in a general way that these acids, in the absence of the alkaline bases that ought to be present, and which in normal, natural, unrefined foods always are present, must be neutralized as rapidly as they are evolved. It was known that because they are neutralized they are found in the urine as discarded waste products in the form of sulphates and phosphates. Notwithstanding these facts, it did not occur to the medical profession that when these neutralizing bases have been removed from food before it is consumed the end-product acids of metabolism abstract basic elements from the living tissues thereby impairing or destroying them.

In this connection it was known that meat which is minced and immersed for a few hours in distilled water loses its potassium, magnesium and calcium salts as well as its color. It was also known that if fed to dogs, cats or other animals such meat brings about their death more quickly than if they are not fed at all. It was also known that an exclusive flesh diet is deficient in calcium and that many of the foods on which children are fed have lost as much as 75 per cent. of the calcium natural to them prior to the refining processes through which they pass. Voit, Gautier, Moore, Sherman and many others had conclusively established these facts. Yet, the medical profession did not look into such deficiency of lime and other salts for an explanation of any of the injuries which, following such a diet, manifest themselves upon the surface in the form of defective teeth nor did they interpret defective teeth to indicate anything of the deeper ravages which go on within unseen.

The medical profession was familiar with the experiments of Hopkins, Eddie and Simpson, who carried on investigations in which the effects of highly milled grains upon children and adults were contrasted with the effects that followed a diet of the whole grain containing the pericarp and germ, in which are found 80 per cent. of the mineral salts and colloids natural to all cereals. The work of Braddon, who confirmed the results of the experiments of these investigators by establishing the fact that a diet of demineralized grains leads to a form of acidosis or peripheral neuritis which can be quickly cured by restoring to the diet the pericarp and germ of the refined grains, was also known. Yet, Braddon's words, "These experiments clearly demonstrate that the outer part of the grain contains the essential constituents for the nutrition of the nervous system both in growing animals and in adults," remained unheeded. Weill and Mouriquand, proving that a diet of demineralized grains could bring about the artificial production of aenemia, nervous prostration, interference with the growth of the young and the breaking up of the natural forces which in the well-fed animal enable it to resist disease, remained with all their revolutionary conclusions in obscurity.

When these experimenters announced that animals fed on demineralized grains manifest waste and paresis of the limbs followed by ataxic cerebellar phenomena, the animals falling backward or laterally with hyperextension of the limbs and head, ending in death, which is sometimes preceded by a cataleptoid condition where there had been no previous symptoms, the medical profession did not take notice.

It was no wonder then that the warning of Benjamin Moore produced so little response when, after a series of experiments, he announced:

"If the series of substances incorporated in the inner layer of the husk and germ are eliminated in the milling of wheat, barley, corn, rice and rye, a diet largely composed of cereals or breadstuffs made with these denatured and highly milled grains will not only fail adequately to nourish the body but will tend to set up active disease.

"Certain of the diseases of malnutrition among children present symptoms very similar to those we note in our experiments with animals. So striking is this similarity that physicians who have followed our work are already treating certain of their malnutrition patients with a diet of whole grain foods.

"Our nerves as a nation are much less stable than in the days prior to refined flour bread. All our experiments suggest that the growing tendency of the age to neurasthenia, 'nerves,' etc., is largely due to removing from our diet those very elements of cereal food which nature has hid in the husk of the grain and which man in his ignorance discards."

The medical world, indifferent to such lines of research and their results, was not startled by the vigorous conclusions of Balland when he said:

"Notwithstanding the known facts it is in vain that some of our most distinguished physicians, eye-witnesses of the miseries suffered in hospitals and anxious for the future of the race, have arisen against the invasion of white breadstuffs. The bolting of flour, favored by the world-wide cultivation of wheat which is extending every year, reaches at the present time as much as 50 per cent. of the weight of the grain, while less than fifty years ago only 13 per cent. of the grain was discarded in milling."

Little, therefore, was to be expected when Michel, Levy and Begin addressed themselves to the French minister of war in the following words:

"What our white bread lacks in nutrition has to be made up by an increased consumption of other foods containing the missing elements. The use of this bread enormously increases the consumption of meat, which when pushed beyond the limits of normal toleration is followed by many physical derangements as grave as those which result from the mineral deficiency of refined cereals."

Even though the scientific conclusions, based on indisputable facts, with which these individual experimenters addressed the medical world were confirmed by the experiments of Heiser, Aaron, Fraser, Highet and DeHaan, they failed to crystalize into action and the medical profession, taught nothing of food in the schools, remained unteachable out of them.

The medical world went on seeking in a score of anemic theories for the unknown cause of the many diseases and the various stages of "indisposition" which preceded them but always were its purposes frustrated and one by one the loftiest of theories evolved through fifty years of vain speculation have died of general debility. The work of Takaki, Vedder, Strong, Cowell; the experiments in the Japanese hospitals at Hirshime, Tokio, Kobe and Sasebo; the conclusions of Chamberlain, Ushenko and Schaumann; the experience of Bilibid Prison, the Coulion Leper Colony, the Straits Settlement, the county jail at Elizabeth, the laborers' camp of the Madeira Mamore Railway, the crew of the Kronprinz Wilhelm, all disclosed not only the fact that in the prevention of polyneuritis and its kindred disorders a large number of substances were absolutely worthless, such as potassium chloride, phosphoric acid, either singly or combined, potassium phosphate, acetate or carbonate, magnesium phosphate, lipoids of the lecithin group, nitrogen compounds, histidin, asparagin, amino acids, potassium iodide, thyroid extract, Romann's salt mixture, vegetable oil, egg albumen or any combination of these substances, as

well as the fact that all such diseases are immediately eradicated when the diet of their victims contains the undisorganized mineral salts and colloids found in the germ and pericarp of grains, the yolk of eggs, the solids of milk and the juices of fruits as well as in beans, peas and the meats of nuts.

Although it was known definitely and in detail that the function of food minerals, particularly of the bases, are to regulate the specific gravity of the blood and other internal secretions; to regulate the chemical reactions of the blood and other internal secretions; to preserve the tissues from disorganization and putrefaction; to enter into the permanent composition of certain structures, such as the bones, teeth and tissues; to enable the blood to hold certain materials to the needs of the body; to serve special purposes, such, for example as the influence of chlorine on hydrochloric formation, the influence of potassium on the elasticity of the tissues, all these outstanding facts were relegated to the scrap-heap of neglect in the treatment of the myriad of major and minor infirmities with which humanity is cursed.

There is no need here to refer to the experiments and conclusions of Gourand, Starling, Hille, Wellman, Little, Caspari, Mosykowski, Arrell, Dose, Ashmeade, Perrenon, Maxwell, Steinitz, Zadik, Leipsiger, Gumpert, Ehrstrom, Hart, Forbes, Parker, Livingood, Liebreich, Ravenel, Wilson, Babcock, Gettler, Sinclair, Krulish and Sutter, for they all confirm in elaborate detail the conclusions already suggested in outline here. The conclusions can be briefly summed up in one sentence: The medical profession has failed to find through the pharmacy any substitute for the curative agencies of the farm.

It was thought by a few hopefuls who stood on the frontier of truth in respect to the etiology of the many preventable diseases originating in a demineralized diet that the work of 1914, 1915 and 1916, conducted by Goldberger, Waring, Willets and Wheeler at the orphanages in Jackson, Mississippi, and the experiment carried out at the farm of the Mississippi State Penitentiary, under the auspices of the United States Public Health Service, would finally ford its way into the consciousness of the nation. This hope was emphasized by the United States *Public Health Service Bulletin*, issued April, 1916, by Voegtlin, Sullivan and Myers, which, without equivocation or compromise, declared:

"The introduction of the roller-mill system in 1878, by means of which it was made possible to separate the various parts of the kernel, namely: The germ of embryo, the bran and the endosperm, or starchy part, made it possible to grind the starchy part to a very fine flour, which, on account of its white appearance, appealed to the housewife as an assumably purer product, thus depriving the finished product of some valuable food constituents. The large number of analyses of such products made in the Bureau of Chemistry of the Department of Agriculture and at the Hygienic Laboratory clearly show that the highly milled wheat flour and degerminated corn meal contain less protein, fat and mineral matter than the old-fashioned products. Fowl, the classical experimental animal, will live in perfect health for many months on an exclusive diet of unmilled wheat or unmilled corn. If these animals are fed, however, on highly milled products they will die within a month or two of polyneuritis, a disease very similar to beri-beri."

This bulletin represented a positive and emphatic analysis of the mineral or so-called vitamine deficiency of patent flour, polished rice, pearled barley, degerminated corn meal and refined rye and the breads, breadstuffs, biscuits, crackers, cakes and puddings which are made of these impoverished materials and which constitute the bulk of the diet of so many millions of prospective mothers, nursing mothers and growing children. The medical profession, however, was not destined to profit by the belated revelations thus uttered under such dignified auspices.

The flour millers of the west immediately swooped down upon the Public Health Service which, terrified by the dignity and power of the industry which it had offended, issued a "correcting" bulletin, Sept., 1916, intended to "restore to highly milled grains the confidence of the people which they had formerly enjoyed."

This bulletin, while it in no manner contradicted any of the conclusions of the bulletin which it was designed to "correct," nevertheless gave to the world the following commercially inspired and pernicious sophistry:

"From the broad view of nutrition it is very probably immaterial what kind of flour is used in making bread, *provided that an adequate mixed diet is consumed which will supply sufficient of the essential dietary components outside of the cereal contained in the diet.*"

It was regretted that the former bulletin had occasioned some alarm and that it became necessary for the publishers of the *American Miller* to declare that as a result of the publication of the United States Health Service facts the production of highly milled flours had fallen off nearly 25 per cent. and the flour industry had been hit hard in a financial way.

The special despatch issued from Washington following the advent of this suppressed truth contained the following astonishing words:

"At the Public Health Service headquarters the explanation is made that an article in one of the reports of the service was misinterpreted to mean that the use of highly milled flour had been discovered as the cause of pellagra.

"The facts set forth as regards pellagra have not been challenged but as some erroneous inferences as regards white flour and the bread made from it have been drawn from the paper" it appears desirable to restore white bread and demineralized breakfast foods to their former dignity. The quoted words are official. The unquoted addition is what the millers desired to public to hear.

Thus the millers of white flour, informing the Public Health Service that in consequence of the imprudent revelation of its work they had suffered a loss of business, were able to strangle the final announcement that pellagra had been conquered—an announcement that ranks high among the great achievements of medical science—and thus the Public Health Service was inspired to a labored effort to do justice to the white flour millers so that the new and wonderful message which should have been conveyed to all the people, as well as to the medical profession, as clearly as possible, is now quite obscured from view.

What the Public Health Service says for the millers is true enough. Where sufficient proper food is eaten white bread may do no harm. White bread will not, with sufficient proper food, cause pellagra, beri-beri or any of their kindred evils. Neither will polished rice or pearled barley or ordinary commercial corn meal or any of the scores of other demineralized commercial food preparations, that for appearance sake or to prevent decay on the shelves of the grocer are robbed of their life-sustaining elements, cause pellagra where "sufficient proper food is eaten."

"Sufficient proper food" is a phrase easily coined but unfortunately it is a phrase that means nothing. The inadequacy of insufficient proper food has become a classic. It is not possible for the United States Public Health Service to bury under a glib phrase the facts concerning the refinement of our grains and breadstuffs to that condition wherein they no longer represent either proper food or a sufficiency of food of any kind.

The country people of the South, more than 25,000 of whom now die annually from pellagra, may indeed suffer from a lack of sufficient proper food, but the city people of the east, west and north, as well as the city people of the south, also suffer from the same lack of sufficient proper food.

Hart, in feeding hogs in experiments conducted in the Wisconsin Experiment Station, found that 1.12 grams of phosphorus per day was just about sufficient for the hogs until they attained a weight of about 85 pounds, after which this quantity was clearly insufficient for the needs of the animal.

Commenting on this phenomenon, Sherman declares, "1.12 grams of phosphorus would hardly seem a desirable amount for a growing child of the same size or for a fully grown man or woman." In connection with this phosphorus deficiency, Sherman, Mettler and Sinclair report a comparison of the amount of phosphorus contained in the food of typical American families (not families of pellagra-stricken farmers), showing that a freely chosen diet of our most commonplace denatured food products does not furnish more than 1.12 grams of phosphorus estimated as 2.75 grams phosphorus pentoxide. These investigations, showing just how the robbery of our grain foods through refining processes goes on, not among the undernourished of rural communities, but among a common average of the common people, were carried out in twenty American dietaries including a lawyer's family in Pittsburgh, a teacher's family in Indiana, a school superintenden's family in Chicago, a teacher's family in New York, a student's club in Tennessee, 115 women students in Ohio, a carpet dyer's family in New York, a sewing woman's family in New York, a house decorator's family in Pittsburgh, a glass blower's family in Pittsburgh, two mill workers' families in Pittsburgh, a mechanic's family in Knoxville, Tenn., 30 lumber men in Maine, a farmer's family in Tennessee, 13 men students, 5 women students and one child in Knoxville, Tenn., boarding house, two negro farmers' families in Alabama. The study continued 58 days, and took the average from 12,238 meals taken by men, and 793 meals taken by women. Speaking of these experiments, Sherman declares: "These results indicate that present food habits lead to a deficiency of phosphorus compounds, and it is not improbable that many cases of malnutrition are really due to an inadequate supply of phosphorus compounds."

The medical world is now confronted by this question. Is the commercial impoverishment of so many of our foods of tragical importance to large groups of our population who, through poverty and ignorance, are unable to obtain a varied diet but who, as is now known, subsist mainly on bread and cereal products that have been robbed of the parts that are vital to animal life.

Correspondence

An Exposition of Anophelian Therapy.

To the Editor of THE MEDICAL TIMES:

A few weeks ago a colleague handed me an article to read. There were pictorial illustrations of the life processes of the malarial germ as seen in the *mosquito*. This article was so super-scientific that I was not able to grasp it. Nevertheless it aroused my curiosity. I wanted to ask a few questions, but for fear my colleague would roast me for not knowing about the anatomy physiology and pathology of a mosquito I left his office somewhat chagrined over my own ignorance.

I am not ashamed to ask you to tell us some of the symptoms manifested in a case of malarial fever as seen in the mosquito. I take it for granted that a mosquito does have fever, although I never saw a case, besides I have no thermometer suitable for taking the temperature of a mosquito; nor do I know whether quinin sulphate would be the proper remedy. You can readily see how badly puzzled I am. Does the portal circulation become inactive and the liver and spleen enlarged? You may consider these questions trivial and of no import, but, sir, if a man does not know the life process of mosquitos, how can he ever know the life processes of man —eh?

You see I started at the wrong end. I began on man and then the lower animals when I ought to have started on birds. Such as the mosquito, fly and potato bug. Now, in my distress, I come to you and ask you to unbosom yourself and tell all the details incident to a case of malarial fever as seen in a mosquito, where suitable thermometers can be purchased, the proper remedy, dose and how and when to give the same, also whether hydrotheraphy is useful, how to use the hypodermic, etc.

You can do it and thus become a benefactor to the mosquito and possibly other birds—as well as to Doctors?

Don't you see?

W. P. HOWLE, M. D.

Charleston, Mo.

The blood of the mosquito is clear, colorless, and has no oxygen-carrying cells, but is more in the nature of lymph. The hematozoön of malaria grows within the red blood-corpuscles in human begins. Obviously, infection of the blood stream in mosquitoes would not be attended by the same "clinical" results as in human beings. As a matter of fact the functions of the female mosquito, who is the biting member of the tribe, are greatly intensified after a meal of malarial blood. The life activities of the mosquito go on just the same when malarial blood is taken as when uninfected blood is imbibed, and the life of the insect is not shortened nor does she show any signs of illness.

Dr. Howle's vision of sickened members of the genus *Anopheles*, suffering from rigor, pyrexia, gastritis, bone-ache, prostration and cachexia, seems to be baseless. We hope he accepts our explanation as adequate.—Ed.

Mutatis Mutandis.

To the Editor of THE MEDICAL TIMES:

Some of the arguments against compulsory health insurance are much less convincing than they are instructive of the workings of the anti-social mind. Thus: "The imposition of a burden so great on the manufacturer or employer of New York State would place him at a serious disadvantage in competition with similar manufacturers in other States where no such law exists. . . . Every added burden on industry tends to destroy that industry and transfer it to other localities where the burdens are less."

This is, if anything, a reason for similar legislation in other States. The apparent objection applies, and has actually been raised, to every measure of reform in sanitation, public health and community safety. Fire escapes, Board of Health inspections, age and educational requirements for working children, protection of workmen against accidents and trade diseases, all place the manufacturer or employe "at a disadvantage in competition with manufacturers in other States," and to that extent act as an added burden on industry. Far from destroying that industry, the measure preserves the industrial, and to some of us, at least, this is as important a function of medicine and social science as the arbitrary protection of profits. Others of us have still failed to realize that good health and working ability are an asset to the community, not to a single class, and that their preservation, even at a cost to be assessed on several classes or distributed between public, employer and employed, will result, inevitably if indirectly, to the benefit of each and every one of us.

There may be—there undoubtedly are—valid, practical objections to the Mills bill as at present constituted, but it is no more arbitrary, unjust or vicious than compulsory fire escapes, because the liability of various classes of workmen to accidental fires varies, as does their intelligence and sobriety, and the responsibility of employers.

New York.

PERCY FRIDENBERG, M. D.

The employment of collargol in pyelography is not followed by toxic systemic injury on account of the absorption of the drug. In case it is injected under high pressure and remains for some time in the renal pelvis, a local necrosis of the parenchyma may ensue.

Acute infections from the teeth, tonsils, and other foci may cause local forms of osteitis and periostitis.

Public Health

Some Fallacies of Compulsory Health Insurance.

Higher wages in the United States are of decidedly greater importance to wage-earners than a system of compulsory sickness insurance. Accepting the estimate of an annual income loss of $800,000,000 on account of wage-earners' sickness, it would only require a wage increase of 10 cents a day to more than meet this amount. . . . It is most unfortunate that the arguments in favor of compulsory health insurance should represent almost exclusively the views of half a dozen men in sympathy with the aims and ideals of neither organized labor nor of industry. . . . Prevention [of disease] has nothing directly to do with insurance, which is simply an economic method for the equitable and rational distribution of losses. . . . In England the National Health Insurance Act has thoroughly disorganized the medical profession, and a vast amount of time which in former years was devoted to public discussions of medical problems is now required for interminable disputes concerning fees, prescriptions, over-prescribing, litigation, payment of bills, conflicts of interest, etc. . . . In actual experience it would unquestionably be found that the results would not benefit the workmen, but primarily the new bureaucratic organization, which in course of time would be converted into a huge political machine. . . . It is not in the direction of new governmental agencies that there lies much if any hope for a betterment of existing conditions, but in the most thoroughgoing efficiency of existing methods. . . . Those who have been heard from [the accelerators] through a skilfully organized press propaganda are but a small group of the vast majority of the American people, to whose vital interest it is that the facts of the situation should be thoroughly understood. . . . The entire propaganda for compulsory health insurance is really an audacious attempt on the part of a very small group of men, not representative of labor, industry or the public at large, to force upon the American people a bureaucratic system on the principle of coercion. . . . [It] is merely poor relief under another name. It is indirect taxation in its most pernicious form. . . . For these and many other reasons the contemplated legislation on compulsory health insurance should be consistently opposed as contrary to the fundamental principles of a republican form of government and as inimical to the best interests of American wage-earners and the public at large.—(Frederick L. Hoffman, in the *Scientific Monthly*, April, 1917.)

Daylight Saving.

When Prof. Edward C. Pickering, the distinguished astronomer of Harvard, said that he looked upon "daylight saving" as "a form of self-deception and a source of danger" he voiced in concrete form the opinion of many who from the time the idea was launched in England some years ago have been dead set against it on common sense grounds. Not that civilized humanity in many parts of this country and Europe would not be infinitely better off were it to go about systematically saving daylight, but why deliberately fool oneself by setting all clocks ahead an hour during the seven months which lie between October 1 and May 1? Exactly the same result would be achieved by the simple process of getting about the day's work sixty minutes earlier. Moreover, every one would not be thrown into what Prof. Pickering rightly regards as "not an altogether healthy state of mind." So far as the possibilities of danger in the carrying out of the proposed plan are concerned, the question of the confusion of railroad time tables, with its bearing upon the liability of an increase in accidents twice a year, is alone sufficient to warrant grave doubts as to whether the game is really worth the candle.—(*The Spur.*)

Sewage Disposal.

Being familiar with the fact that stable manure is a marketable article and commands no inconsiderable price, the average man is not a little mystified over the apparent difficulty met with in disposing of city sewage, says Prof. W. L. Mason of Rensselaer Polytechnic Institute, Troy, N. Y. Most people are impressed, and rightly so, by the enormous tonnage of fertilizing material that is daily dumped to waste by our great cities; not alone in the shape of garbage, but also in the more or less liquid form flowing in the sewers. The aggregate volume of this sewage flow is great, indeed; thus New York City turns into the local tide-waters no less than six hundred millions of gallons every twenty-four hours, and proportionate amounts are disposed of in various ways by all cities and towns throughout the land. One hundred gallons of sewage per capita per day is not an unreasonable amount whereon to base an estimate, so that, with this figure in mind, the great flood of municipal waste to be cared for throughout the whole country certainly becomes impressive.

What many, if not most, of the people do not see is why this great bulk of fertilizer should be considered as waste material at all. Why can it not be used to improve large tracts of land that now remain idle and well nigh valueless because of the poverty of the soil?

Persons who have seen the operation of the slow-sand filters that furify many of our municipal water supplies are aware of the millions of gallons of water that pass through these beds per day, and, knowing that the filtration process is a continuous one for weeks at a time, they anticipate a similar, or nearly similar, manner of procedure when sewage is the liquid to be filtered.

Although the form of oxidation termed "nitrification" is what is sought when slow-sand filtration is employed to improve either water or sewage, there is a striking difference between the methods in which the sand beds are used in the two instances. Even the poorest water contains but little oxidizable matter compared with that in sewage, and so the amount of dissolved air present can easily furnish sufficient oxygen to accomplish all the work required to be done without need of actual re-aeration of the sand layer.

With sewage the matter is quite different. Much oxidation work is required and the quantity of oxygen in solution is practically nil, so that frequent admission of the atmosphere to the very depths of the bed is imperative, as otherwise improvement of the effluent would quickly cease.

Given a favorably located stretch of sandy soil, a proper intermittent use of such an area would allow of between 5,000 and 10,000 gallons of sewage being turned upon it per acre per day, which would be equivalent to the setting apart of say 1,000 to 2,000 acres of land for the disposal of the sewage from a city of 100,000 people. Should the character of the soil be less favorable its area would naturally have to be greater in order to do the same amount and character of work. We can thus see how easy it would be to quickly water-log an unfit type of soil by turning upon it the sewage of comparatively few people and how easily a nuisance could be developed. A number of successful sewage farms now do exist, but their example cannot be universally applied as a means of sewage disposal, and the very best of these farms can take care of only a limited volume of sewage.

The problem of handling sewage is one which has recently received considerable attention from the American Chemical Society, and it is hoped that the time is not far distant when the enormous waste now going on may, by the efforts of the chemist, be turned to a source of profit.

Life Insurance and Alcohol.

An interesting analysis of the experience of American life insurance societies in respect to the mortality among abstainers from alcohol, temperate users and moderate users is presented in the current bulletin of the city of New York health department. Dividing the policy holders into three classes, according to whether they are total abstainers, temperate users or moderate but habitual users of alcohol, it is shown that the mortality of the first class is about 15 per cent. less than that of the second, and about 25 per cent. less than that of the third. This much-diminished mortality among total abstainers as compared with nonabstainers is marked even when the general section of a company's policy holders, that is, the nonobstainers, presents a mortality experience which is favorable as compared with that of other companies. For example, in the case of one such company in 1906-1910, the mortality in the abstainers' section was 40 per cent. less than that in the general section, and in the years 1911-1915, 35 per cent. less.

Results are given of investigations into the subsequent history of those who have at one time drunk to excess and of those who have undergone an alcohol cure. In neither case is the risk a good one from the insurance point of view. The importance of these statistics is derived from the fact that they have not been collected for controversial purposes by parties holding a brief against alcohol, but are the figures by which commercial organizations, whose interest in the matter is purely financial, are guided in fixing premiums. While there can be no doubt left in the mind of any one who reads this paper that even the moderate use of alcohol shortens life, the writer of it remarks that the relatively low mortality among abstainers is not solely attributable to abstinence from alcohol, but it is due to "temperance in all things and total abstinence from alcohol."—(*J. A. M. A.*)

War Medicine and Surgery

Gas Gangrene.

Dr. Guermonprez, Professor of Therapeutics at Lille, surgeon-major in the French Army at Calais, has had much experience of this dread complication of wounds since the beginning of the war, and has written a monograph on the subject.

Gas gangrene is not a simple infection due to one organism. It is not frank in its onset, nor unvarying in its behavior. It is most often sudden, unexpected, rapid, and calamitous. It appears under protean forms. We all recognize now that its prevalence was due to the conditions of trench warfare. The soil through which the trenches run, manured for intensive cultivation and polluted by the necessity of continuous occupation, clings to the clothing of the soldier, and is carried by the shrapnel fragments into the lacerated soft tissues. Here is a favorable medium for the propagation of bacteria. The necrotic and stunned tissues are unable to react to the invader, and the infection goes on apace. Two fundamental ideas have to be established—first, that we have to deal in all cases with a polymicrobic invasion consisting of aerobes as well as anaerobes, showing itself in a clinically polymorphous infection; and, secondly, that the development of the disease is favored and the virulence of each infecting agent is exaggerated by the association of several. Some observers, indeed, have held that gas gangrene is a specific infection, a special disease characterized by a collection of local and general symptoms always the same, though developing differently according as the causal organism is the *Vibrion seplique* or the *Bacillus perfringens*. The other organisms which are almost invariably found in association are supposed to play but a secondary part. There is a school in France, led by Delbet, which from the results of pyoculture claims to be able to say when immediate amputation should be done, and when conservative measures should be adopted. In Germany, Fraenkel gives a method whereby one may differentiate a diseased condition due to what most Germans call Fraenkel's organism (really Pasteur's) from a clinically identical condition of better prognosis, but the procedure takes at least sixteen hours, and Dr. Guermonprez points out that these precious hours may determine a fatal issue. The general consensus of opinion is that no one organism can be held as specific; at one time it is *B. perfringens*, at another *Vibrion septique;* perhaps, too, Vincent's fusiform bacillus, the *B. coli*. and many more, but generally it is a microbic association—a syndicate of bacteria—that causes the trouble. Not much is to be gained by bacteriological studies as far as treatment is concerned, and all shrapnel wounds are to be looked upon as potential foci of gas gangrene.

Some cases show gangrene without gas formation, and some give gas without gangrene. The emphysema may travel very rapidly by the connective or muscular tissues, and is certainly in advance of the bronze erysipelas which is an evidence of subcutaneous necrosis.

As regards the period of incubation, Professor Guermonprez considers that the graver forms start twenty-four to forty-eight hours after the wound, while the slow forms begin on the fourth day. Beyond that again there are some cases with a long intent period, apt to be ignored, and exploding very late when the daily change of dressings is discontinued. The symptoms of onset vary from case to case; the only subjective symptom that arrests attention is a great fear on the patient's part of surgical interference. Sometimes there are violent pains in the affected limb, and the neighborhood of the wound becomes swollen. The temperature is not usually high, the pulse is raised above 100. A yellowish brown, bronze, greenish, or greyish color with mottling shows on the surface, and there is frequently oedema. The presence of gas can be detected by the finger. There are signs of a general septicemia, and the conditions may spread with alarming rapidity. Not infrequently quite localized forms are met with. Many divisions and subdivisions of the conditions have been made, and a comprehensive description of the signs is impossible. When it is in full course the diagnosis is no longer in doubt, and more or less heroic measures have to be taken to combat it. The rapidity of evacuation of wounded from the trenches to the bases, and the early change of dressings, have much diminished the incidence of the disease.

When a limb is infected, amputation will generally have to be done—either under the guidance of pyocultural results or on account of the rapid spread of the condition, and the rules are, roughly, to amputate through perfectly healthy tissues some distance above the visible limits of invasion, the tourniquet being avoided if possible. Many local treatments have been tried with varying degrees of success, and these are set forth in the book. The results of Carrel's method of employing Dakin's hypochlorite solution are discussed at length. It does not seem to meet with universal praise amongst French surgeons. Dressings with iron perchloride, quinine hydrochloride, ether, camphor, and many other substances, have, in the hands of some, given good results. Dr. Guermonprez is favorably impressed with the results of alum compresses, and especially with the use of saturated ethereal solutions of camphor, and advocates a more extended trial. (*Brit. Med. J., Nov.* 11, 1916.)

Trench Fever.

Major A. F. Hurst describes the symptoms of this new disease. The disease generally begins suddenly without premonitory symptoms. The patient complains of severe headache and this is rapidly followed by pain in the lower part of the back and on the second or third day in the legs. Pain in the neck is occasionally observed. The patient generally shivers, but there is never a definite rigor; he is occasionally flushed and often sweats profusely. The bowels are regular or constipated, the appetite is lost, the tongue most and often slightly furred, and occasionally mild pharyngitis is present.

In a few cases, in which constipation is generally present, there is some abdominal pain with slight distension and tenderness, and there may be nausea and even vomiting at the onset. Four out of 50 cases of the periodic type were sent to hospital diagnosed as appendicitis. In the first attack the spleen is sometimes palpable or is found to be enlarged on percussion and there may be some tenderness in the left hypochondrium. Hunt and McNee never found any splenic enlargement in the cases.

Leucocytosis is often, but not always, present during the pyrexial attacks; the count varied between 4,700 and 22,000 per c.mm. in 35 cases, mostly of the short type, examined in France. In many of the cases examined both in France and in Salonica there was a relative increase in the large mononuclear cells. The percentage of hemoglobin is generally about 80, though the number of red corpuscles is undiminished.

In the *short form of trench fever* the temperature rises rapidly to between 102° and 104° F., but the pulse-rate is only slightly increased. On the third or fourth day the temperature suddenly falls, generally to normal or subnormal, but there is no corresponding improvement in the symptoms. After an interval of a few hours it rises again, and then after another two to five days it falls to normal. On this occasion there is immediate relief to all of the symptoms. In some cases the remission on the third or fourth day does not occur, the temperature remaining raised for about a week. There is often a single relapse after an interval varying from a few hours to ten days, but generally less than four days. The temperature rises to 100° or 101° for 24 or 48 hours, during which the symptoms return with diminished severity. The patient is generally fit for duty almost immediately after the temperature falls again. Many cases have subsequently been kept under observation for months without any return of fever or other symptoms.

In the *long or periodic type of trench fever* the temperature rises to between 101° and 104° F. on the first evening. The initial attack is variable in duration; the temperature may be normal the first morning, high in the evening, normal the second morning, and rather less high the second evening than the first, after which it remains down. In other cases the first attack may last as long as four or five days, the temperature being always lower in the morning than the preceding and following evening, the highest temperature being reached on the second or third day; in one case it reached 105.8° on the third evening, though it was normal the previous and following mornings. The pulse is generally accelerated in proportion with the temperature, but at first it may be considerably faster. With the fall of temperature at the end of the initial attack all the symptoms disappear, and the patient is often sent back to duty. After being well for two to ten days he complains of a return of headache and pain in the legs, which culminate at night; the temperature rises in the evening to a point which is generally a little lower than the highest temperature in the first attack. The temperature falls to normal or nearly normal the next morning, and either remains down or rises to a less extent the second evening, thereafter to remain normal. The general symptoms are much less severe than in the first attack and the acceleration of the pulse is less marked, but the pain in the legs and tenderness of the shins are generally greater, and they may not disappear completely in the interval between the second and third attacks, though the headache, which generally remains the most prominent symptom during the attack, is never present in the apyrexial periods. The pain in the legs is sometimes extreme and may prevent sleep; in other cases it is comparatively slight and the patient looks and feels remarkably well, considering that he has a temperature of 101° or more. Recurrences follow periodicall, the maximum tem-

(*Continued on p.* 26)

Diagnosis and Treatment

Boric Acid Poisoning?

George C. Maguire reports the case of a young woman who had stepped off a motor bus while in motion. Falling to the ground, the hind wheel passed over her right leg.

The soft tissues of the leg were reduced to pulp, but a radiograph showed no gross injury to the bones. The surgeon replaced the tissues, as far as possible, and sutured the skin over the exposed area. Fomentations of soda chlorinata were applied four times in the twenty-four hours, and a tonic, consisting of quininæ sulph., gr. ii, acid sulp. dil.,mx, aquæ ad. ℥i, given thrice daily.

After a few days the damaged epidermis sloughed, leaving an uncovered area from the knee to the ankle. When the wound showed a complete covering of healthy granulations, boric acid fomentations were used.

The patient complained of a slight headache, for which she had aspirin, gr. v. The headache persisted, and, as it was thought that the quinin might be the cause, its administration was stopped.

Three days later the headache still persisted, and a macular and papular rash appeared, covering the body. The patient was very depressed, and vomited dark green fluid. The temperature rose to 99° F. and the pulse to 132.

The next day she vomited twice after mist. alba, and ecchymoses appeared under her eyes, while her depression deepened. The temperature rose to 100.2, and her pulse became 120. The boric fomentations were then stopped. Strychnin, gr. 1-25, and digitalin, gr. 1-100, was given, and, later, morphia, gr. 1-6. The temperature rose to 101.8 and the pulse to 160. She died the following day.

A post-mortem examination showed all the organs normal except the brain, which was covered with an exudation of plastic lymph, and surface was congested.

No septic focus was found in the injured leg or in the abdomen.

The cause of death was thus left in doubt. The meningitis, though slight, might account for death, but an interesting question arose as to whether the boric acid might have caused the meningitis and thus death.

An examination of the available literature shows no case of death from boric acid poisoning, but Hale White's "Materia Medica" contains the following passage under the therapeutics of boric acid:

"* * * It may cause a scaly eruption. In exceptional cases, when applied in large quantities to raw surfaces or mucous membranes, rise of temperature, depression of spirits, feeble pulse, ecchymoses, lumbar pain, albuminuria, nausea, vomiting and diarrhea have supervened."

The boric acid fomentation consisted of lint wrung out of a saturated solution of boric acid.—(*The Practitioner.*)

"Colds" and the Influence of the Atmosphere Upon the Nasal Mucous Membrane.

We have not yet fully grasped the principles of our respiratory physiology as a guide for its rational and efficient artificial indoor management. Leonard Hill tersely describes the main upshot from his recent elaborate inquiry into the ventilation of the House of Commons. "Cold feet and heated heads" are the worst of all engineering for any good legislation. The Roman architects had aimed at the reverse in their sumptuous dwellings by a hypocaust which warmed the floor and by unglazed upper inlets which afforded cool brows and noses. His exposé in the *British Medical Journal*, that systematic upset of the automatic "nasal regulation" of the respiratory circulation is profitable reading. He was allowed to partition off a section of the legislative chamber for comparative trials of the opposite plan. His own nasal asymmetry, with a narrowed left passage, falicitated his demonstrations. Sitting in the unaltered ventilation, his left air-way was soon completely obstructed. Each time he entered the corrected atmosphere it was rapidly restored to patency. This observation and that of one-storied foundries in which a fierce heat of the flooring is associated with ample open-air supply from the roof are used as a basis for an illuminating exposition of our natural mechanism and of the needful artificial mechanisms; and of the working significance of atmospheric heat and cold, moisture and dryness, stagnation and movement, free renewal and staleness when confined, and of the physiological significance of hot or cold feet, and of an overheated and dried or of a refrigerated and weeping nasal mucous membrane.

1. *Temperature.* Extreme cold out of doors kills us; it never gives us a cold; witness the shipwrecked on the ocean and also our Nausicaas with chilled feet on the beach. The nose manages its own circulation, and, strange to note, largely too that of the body. The first thing it has to do is to keep up its own heat against nasal congelation, for not only the nose, but the whole face and head too are provided with the most abundant circulation. Yet it cannot of itself always keep the feet warm. Even on the Arctic march they may be uncomfortably cold. But this never breeds a "cold." Neither does the coldness of the "trench-foot," a specially combined osmotic result of local chilling and of water-logging and soakage of the skin (sea-water soaking does not cause it); together with a poisonous bacterial concentration within the unchanged footwear. Animals thrive in the open cold field, or in draughty byres. Fowls decline in artifically heated pens. The incubator chick is delicate; likewise a coddled child.

2. *Draughts* cannot be tolerated by some whose nasal and cutaneous vasomotors are incompetent from age or exhaustion, or acutely irritable as in the asthmatic and the rheumatic. Why have any draughts? The open air has none, but only winds. In that matter a separate legislation is clearly needed for the pathological groups. *Vae victis,* in our daily railway carriage conflicts. In the nursery the nasal incompetence of the few has ruled tradition, and its traditions have long ruled the unhygienic habits of the nation. "Science may beat against the door, but tradition holds it fast."

3. *Moisture and Hygrometry.* Air, when saturated, holds at normal body temperature 19 grains per cubic foot; at 90° F., 14.8 grains; at 80°, 10.9; at 70°, 8.0; at 60°, 5.7; at 50°, 4.1; at 40°, 2.8; at 30°, 1.9 grains. When inhaling air at 30° a man will exhale at rest in his saturated expirations (amounting to 1 cubic foot of air in about four minutes) a supply of water of 17.1 gr. (19 minus 1.9) for every four minutes; but during exercise the same for every minute or even half minute, thus totaling up to 2 or 3 ounces of water per hour. This output is not wholly "from the nose." Under exercise other parts of the air-way share increasingly in the evaporation of a beneficent outpouring of lymph. In the saturated hot atmosphere of a spinning mill (holding at 75° 9.4 grains per cubic foot) the nose will only have to evaporate 9.6 grains per minute, namely, about 42 per cent. less than out of doors on a wintry day. This opens the mind to the extreme activity, under exposure to intense cold, of the nasal evaporation and of the outflow of nasal lymph from the circulation to maintain it. The high humidity of tropical saturated air enables us to save that output for the sweating which has to cool our body. Turning then to the sudden changes from overheated indoor air to extreme cold outside, where should we be without a ready and wide range of nasal adaptive circulatory regulation? Dry cold air does not check the nasal evaporation; neither does it conduct much heat away from the cutaneous nerve endings. But our wintry damp air (much more our cold mists, with cold particles to vaporize before the membrane can warm the air and start to evaporate) is a great strain and education for our vasomotor and secretory nasal mechanisms. Any overstrain is easily productive of colds in those not hardened but softened. Our normal safety and comfort are from "adequate skin and nose reactions," and we are specially sensitive and reactive to any change in the rate of our nasal evaporation.

4. *Nasal Circulation and Exudation.* Cold outer air necessitates greatly increased local circulation to keep the membrane at body temperature and to keep it evaporating. Its immediate effect is to make the nose taut against any venous stagnation and to increase the rapidity of the capillary flow, thus easing the path for transudation as a physical means to our nasal sanitation and, therefore, to our protection from microbic inroads. It is clear that the peripheral situation and exposure of the nasal membrane necessitates a local heat production in excess of that of the intrapulmonary bronchial membrane. Some attempt has been made by Hill to estimate this in calories. To raise to body temperature 1 liter of the air inspired, about 0.3 of a small calorie, is required for each degree centigrade. Breathing 40 liters per minute under strong exercise in cold open air a man may lose four or five large calories in warming the inspired air instead of only 0.38 when sitting in a room at 65° F. A table is given of the readings from a delicate thermometer introduced below the inferior turbinate to record the temperature variations of the membrane and of the secretion it pours out to keep itself warm. Another table shows the amount of that secretion as estimated from comparative weighings of plugs of absorbent cotton wool before and after their insertion for three minutes, the membrane having previously been mopped dry. The estimations were made in this way after three minutes spent alternately in a warm room and in a cold wind on the roof. The effect of cold air was remarkable; though probably underestimated in the record, as some of the fluid could run off down the probe from the saturated plug

before the three minutes had run out preliminary to the wet weighing. Moreover, the nose is constructed for a backward flow, the limited anterior flow alone forcing the use of the handkerchief.

An investigation of the function of the nasal membrane with speculum and probe had been instituted three years ago with the assistance of F. F. Muecke. In close, stuffy air the membrane (probably also that of the sinuses) is congested and pits under the probe. The headache is due to this obstruction; not, as alleged, to toxic absorption. It is relieved by cold air, which tightens and pales the membrane. Another remedy is to warm the *cold feet*. The body temperature remains the same with cold feet; but Hill's katathermometer (exhibited before the Royal Society, 1916) showed that the members' feet were being cooled at a 50 per cent. greater rate than their heads. Much light is thus thrown upon our familiar conceptions as to the genesis of infective colds from open cold or confined warm air, from cold or warm feet, and from an exposure of the skin or its protection. Much more light may let arise from the further study of the adaptive and regulatory atmospheric function of the nasal membrane. The immediate object lesson from the latter supports the latest surgical management of wounds, as suggested by Sir. A. Wright. The osmotic force of salt pulls out immunizing lymph, and this also floats away the infective bacteria. For this any premature scabbing must be prevented.—(*Prog. Med.*, Nov. 3, 1916.)

Industrial Diseases Caused by Light.

T. Harrison Butler has recently drawn attention to certain industrial diseases caused by light, and has suggested means for their prevention.

In many trades, the workers are exposed to light which, by virtue of its intensity or character, may cause injury to the eye. The evil effects fall into three groups:—

1. Those caused by severe glare;
2. Those due to the action of the infra-red heat rays;
3. Those occasioned by the ultra-violent radiation.

1. *Those caused by severe glare,* e. g., *sunlight* (*direct*) *or short-circuit flash.*—Central vision is much reduced, and a positive scotomo is generally present. The patients generally recover. The scotoma is caused by coagulation changes in the macula.

2. *Those due to the action of the infra-red heat rays.*—The prolonged action of great heat on the eye attacks the lens, causing a peculiar form of cataract; the opacity always begins in the pupillary area of the lens, deep down near the posterior pole, but ultimately becomes generalized. Bottlemakers are particularly prone to this disease, but other workers in molten metal or glass (*e.g.*, puddlers) suffer in a similar manner. No *x*-rays and few ultra-violet rays are emitted from the surface of molten glass or metal. The light is very rich in infra-red rays, heat rays, which cause the cataract, the peculiar form of which is due to the fact that these particular rays are entirely absorbed by the iris.

3. *Those occasioned by the ultra-violet radiation.*—The ultra-violet rays cause inflammmation of the lids and conjunctivæ. The rays cannot pass through the lens, but are absorbed by it, causing fluorescence. These ultra-violet rays cause snow-blindness, and an exactly similar disease called ophthalmia electrica. The mercury vapor lamp, especially the quartz mercury vapor lamp, emits a light which contains the maximum of violet and ultra-violet rays; the iron arc and the ordinary carbon arc do so to an almost equal extent, and the metallic filament lamp and the incadescent gas mantle to a much lesser extent. On the other hand, the ordinary bat's wing and the paraffin flame are poor in ultra-violet rays, while the old-fashioned moderator, burning colza or sperm oil, gives an illumination that is almost free from such rays.

The mercury vapor light and the arc light are highly actinic, and are, in consequence, used in process-block making and other photographic operations, with the result that the workers are liable to ophthalmia electrica. Electric welders, too, suffer in a similar manner, owing to the ultra-violet rays given off from the iron carbon arc.

Prevention is simple—the wearing of *suitable* goggles. But what are *suitable* goggles? For glassworkers, the goggles must be made with glass which excludes glare and heat rays, while for electric welders, Polar explorers, and process-block makers, the glass used must be impervious to the ultra-violet rays. Theoretically, nothing could be simpler. In practice, however, a compromise has to be effected, on account of expense, so that goggles are used, which are not scientifically correct. A Crookes's glass is useful to exclude ultra-violet rays, but, for electric welders and glassblowers, not only ultra-violet rays but glare, too, must be excluded. A combination of a Crookes's glass and a sufficiently dense neutral glass is necessary. The compromise consists in the use of the ordinary blue or amber glass goggles of the makers.—(*Practitioner, October,* 1916.)

Treatment of Carriers of Amebic Dysentery.

Attention has frequently been drawn to the importance of the problem presented by chronic carriers of *Entameba histolytica,* owing to the fact that this form of infection, whether following an acute attack of dysentery or discovered apart from any history of dysenteric symptoms, has, in a considerable proportion of cases, proved resistant to treatment by the hypodermic injection of emetin which has been found so efficacious in acute dysentery by all who have used it. A paper by Clifford Dobell affords evidence of the frequency with which contact carriers, as well as convalescent carriers, occur among those who have been exposed to infection in an endemic area, and fully confirms the fact that the ordinary treatment by the hypodermic injection of emetin often fails to free such persons from infection. Just two years ago Du Mez of the University of the Philippines, suggested the use of a double salt of emetin and bismuth—emetin bismuthous iodide—and gave an account of its mode of preparation and constitution.

It is a brick-red powder, insoluble in water, or water acidulated with hydrochloric acid, and stable in air. According to Du Mez's calculations it contains 58 per cent. of iodin and 12 per cent. bismuth, with 29 per cent. emetin. Insoluble salts of bismuth are converted into bismuth sulphide after passing the pylorus, and in all probability the reaction is very slow, taking place as the compound is spread out over the wall of the intestines. Three grains of the double salt, containing about 1 grain of emetin, seems to be a good average daily dose, and twelve such doses may be given in succession. In the recent trials of the drug recorded by Mr. Dobell the double salt was given in cachets containing 1 grain each, until 36 grains had been taken. Vomiting, if it occurred, usually did not come on until some time after the dose had been taken, indicating probably absorption from the intestine and not from the stomach. It is recommended that the dose should be given after a full meal, when the stomach contents will be certainly acid, and on the whole the drug was well tolerated. Lieutenant Matthews, who had clinical charge of the cases, states that he has found it best to persist with it in full doses, as tolerance is usually established in a couple of days, and more quickly than if the dose is reduced on account of the vomiting.

Mr. Dobell gives an account of a systematic investigation of this double salt used in a military hospital in the hope of freeing carriers of the infection. The conclusion to be drawn is that there seems no room for doubt that an advantage is to be gained by administering emetin in the form of this double iodide in these chronic cases of amebic infection. Other reports on isolated cases, and some interim accounts of further systematic trials have come to hand; and on the whole the results are similar to those recorded by Mr. Dobell. There have, indeed, been groups of cases showing less completely favorable results. Inquiry into some such cases raised a doubt as to whether the patients had really taken the drug; in others the full course had certainly not been given; but when due allowance is made for these sources of error it has to be admitted that a residuum of apparent failures remain. There is, however, no evidence from any source to weaken the conviction that the chance of curing a carrier of *Entameba histolytica* with the double iodide is very much greater than with emetin given as any other salt or as ipecacuanha. The curative results have, indeed, been far beyond the original expectation.

On the other hand, the hope that the relative insolubility of the double iodide would prevent vomiting, which was so tiresome a complication of the old ipecacuanha treatment, has not been altogether fulfilled. The vomiting has, in not a few cases, been troublesome; and it would appear that some medical officers have been so discouraged by it as to abandon the treatment. It may be suggested that they exaggerate the importance of an admittedly unpleasant symptom; for those who have persisted in spite of it report, with remarkable unanimity, that in most cases the patient becomes tolerant after a dose or two, and that the improvement the treatment effects in the general health is as striking as, and doubtless dependent on, the disappearance of the amebic infection. Some detail of administration may, it is hoped, soon be discovered which will remove the difficulty due to nausea and vomiting. Some favorable reports have been made of a combined treatment with emetin hypodermically and ipecacuanha by the mouth; it seems likely that replacement of ipecacuanha by the double iodide in this combination might be even more effective. There are other remedies again, such as the Chapparo amargosa of Texas, of which favorable reports come from America, especially for cases of the semi-acute type which have resisted emetin. (*Brit. Med. J., Nov.* 4, 1916.)

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Maltose and Dextrins

in the proportions as found in

Mellin's Food

may be employed successfully as the carbohydrates

In the feeding of normal infants,
In the adjustment of the diet to overcome constipation,
In conditions where a gain in weight is especially desired,
In the feeding of marasmic infants—and
As a temporary diet in diarrhea.

In other words,—proportions of Maltose and Dextrins that are adapted to the sick infant as well as the baby in health are present in Mellin's Food.

Mellin's Food Company, **Boston, Mass.**

(*Continued from p.* 150.)

perature being always reached in the evening. The interval between the height of the attacks is fairly constant in each case, but it varies in different cases between four and eight days, five being the most common interval. Each succeeding attack is generally milder than its predecessor, and the temperature is rather lower, but in severe cases the patient feels weaker in the later intervals, and the pain and tenderness of the legs are more persistent. The later attacks may be of such short duration that the rise in temperature is not recorded at all if it is only taken twice a day. (*Lancet, Oct.* 14, 1916.)

Extraction of a Piece of Shell From the Right Ventricle.

Bichat reports the case of a soldier wounded in the neighborhood of the right lung. *Bull. et mém. Soc. de chir. de Par.*, 1916, xlii, 1100. Radioscopy showed a foreign body in the left part of the thorax at the external and lower limit of the shadow of the pericardium and heart, which followed the movements of the heart and respiration. Later examinations localized this body in the pericardium situated behind the sixth rib.

Operation performed two weeks later under chloroform consisted in incision over the sixth rib; re-section of the rib; longitudinal incision of the pericardium which was found empty. The projectile was left embedded in the lower extremity of the right ventricle. The ventricle was caught between two fingers and pulled forward, incised, and the piece of shell removed by forceps; some black blood escaped, but a few catgut sutures produced hæmostasis. The pericardium was sutured.

There was no acceleration in the heart movements which remained at 80 until the end of the operation. The projectile weighed more than 3 gr. and was 16 mm. long. The condition appeared to progress satisfactorily for more than a week. On the thirteenth day after operation signs of pericarditis appeared; the cicatrix was opened and a quantity of seropurulent fluid drawn off, but ten days later there was sudden aphasia, Cheyne-Stokes respiration was followed by death in a few hours.

At autopsy the lung wound was shown to be uncicatrized; the trajectory contained a small fragment of bone with abundant suppuration. Bichat believes that the pericardic infection originated in the intrapulmonary infection.

This is the fourth published case of extraction of a foreign body from the heart since the war began. In only one of these cases was there a recovery. From a consideration of the general literature of the subject the author concludes that projectiles in the heart, excluding the pericardium, are not well tolerated; that operatory intervention has given better results on the whole than non-interference; and that the subject opens up a new chapter in war surgery.—(*Surg. Gyn. & Ob.*, Nov. 1916.)

Cerebro-Spinal Fever.

R. N. says that once cerebro-spinal fever has appeared in any community, bacteriological examination of the contacts discovers the number of infected persons. These are regarded as potential cases of the disease, and the development of the malady among such people can sometimes, but not always, be prevented by the local application of antiseptic sprays or vapors to their throats. This treatment, if efficient, also prevents the further spread of infection, but of necessity it has a very limited application. It is no more practicable to free the throats of the entire population from meningococci than it would be to attack the widespread distribution of the pneumococcus as a saprophyte in the throats of healthy people.

To control the spread of infection once it has arisen is wise, but it would be infinitely wiser to prevent the possibility of infection in the first instance. The means of prevention are simple. All windows must be open day and night, and to prevent the necessity for closing them in rain or in wind, a weather-board of 18 inches in depth is fixed inside the lower part of the window at an angle of 45°, so that the lower sash may be screwed up one foot from the bottom. A night patrol may be required to see that the space between the window and the weather-board is not covered over with clothes to keep out the air. In the barracks where there had been an epidemic these alterations were carried out.

No further cases of cerebro-spinal fever appeared, and the incidence of respiratory diseases showed a remarkable fall. These simple measures soon save their cost in preventing the posibility either of infection or diease, in obviating the necessity for an enormous amount of expert bacteriological work, in diminishing the incidence of all affections of the respiratory system, and in raising the general health of those to whom they are applied. (*Lancet, Nov.* 11, 1916.)

A good name

—be it professional or trade—
never "just happens".

The sterling reputations of America's medical men,
from the leaders to the rank-and-file,
were built, step by step, by hard study and harder work.

That's the way **our** name came to stand for "Quality";
and we've been more than a half-century "building" it.

SHARP & DOHME
since 1860
"Quality Products"

Are **you** using them? The best druggists sell them.

A Powerful Nutritive Tonic

The great progress that has been made in scientific knowledge concerning bodily nutrition—and physiologic chemistry in general—has emphasized the great importance of certain enzymes and nutrients in maintaining nutritional processes at their highest efficiency.

Especially has attention been directed to diastasic ferments and carbohydrates, for it is increasingly evident that these play a very prominent part in a large proportion of nutritional derangements.

As facts have accumulated, and the notable efficacy of diastase and carefully selected carbohydrates in the management of many forms of malnutrition has been conclusively demonstrated, the use of malt extract has rapidly extended.

The need for malt extract of the highest quality and diastasic efficiency has very naturally led many physicians to turn to

TROMMER
DIASTASIC MALT EXTRACT

Honestly made from the best barley malt, for nearly half a century this pioneer extract of malt has been widely and successfully employed by careful, discriminating physicians who have recognized its remarkable tonic and reconstructive properties. Exceptionally rich in **natural** diastase, maltose and other nutrient extractives, it has been used with conspicuous benefits in **malnutrition, diabetes, incipient tuberculosis as a substitute for cod liver oil, in infant feeding and in all forms of bodily decline where carbohydrate metabolism is defective or impaired.**

In starch indigestion Trommer Extract of Malt, through its influence on the digestive functions, can be relied upon to produce substantial and lasting results. To countless physicians, therefore, Trommer Extract of Malt is not only the ideal corrective of starch indigestion, but also the most dependable and satisfactory nutritive tonic and reconstructive at their command.

Useful and interesting literature on request

THE TROMMER CO., - Fremont, Ohio

With the approach of warm weather, disorders of digestion and resulting intestinal disturbances become prevalent, particularly among infants and children. The treatment, when antiseptics are indicated, is often successfully met by—

LISTERINE

Its well-defined antiseptic power, unobjectionable odor and taste, and the readiness with which it may be admixed with other drugs, has caused many prescriptions to be written and very good results obtained from—

LISTERINE

"The antiseptic selected for internal administration in these cases must not be astringent, strongly acid or such as will coagulate mucin, but, on the contrary, must be non-irritating, non-toxic and compatible with other medicinal agents likely to be prescribed in conjunction therewith." Such an antiseptic solution is—

LISTERINE

Listerine literature, including "Acute Intestinal Infections of Children," mailed on receipt of professional card.

Lambert Pharmacal Company

Twenty-first and Locust Streets **St. Louis, Mo., U. S. A.**

American Medical Editors' Association.

The annual meeting of the American Medical Editors' Association will be held at the McAlpin Hotel, New York, June 4 and 5, under the Presidency of Dr. G. M. Piersol, Editor of the *American Journal of Medical Sciences*. A most interesting and instructive program is now being prepared, and it is contemplated that the forthcoming session will be the largest ever held in the history of the Association. The 48th anniversary of this Society will be celebrated by a banquet on the evening of June 5th at the McAlpin Hotel.

American Proctologic Society.

The 19th annual meeting will be at Hotel Astor, New York, June 4.

The annual address by the President, "The Place of the Proctologist in a Diagnostic Group," will be presented by Alfred J. Zobel, San Francisco.

The papers will include: Adult Rectal Prolapse: Two Cases and a Contrast, Ralph W. Jackson, Fall River, Mass.; Adenomyoma of the Rectum, Frank C. Yeomans, New York; Summary Reports of Nine Cases of Peri-Colic Membrane, John L. Jelks, Memphis; Should the Sphincters Be Divided? Rollin H. Barnes, St. Louis; Neglected Rectal Examination, James A. McVeigh, Detroit; Enemas and Colonic Flushing as Etiologic Factors in Appendicitis, William H. Stauffer, St. Louis; The Relationship of Hemorrhoidal Disease to the Health Balance, William M. Beach, Pittsburgh; The Underlying Factors of the Clamp and Cautery Operation for Internal Piles, W. Oakley Hermance, Philadelphia; The Pathology of Hemorrhoids, J. Coles Brick, Philadelphia; Report of a Case of Idiosyncracy to Quinine and Urea Hydrochloride, Collier F. Martin, Philadelphia; Neoproctology—A Glimpse into the Future, Jerome M. Lynch, New York; The Post-Operative Factor in Rectal Surgery, Barney J. Dryfuss, New York; The Non-surgical Treatment of Splanchnoptosis, Rolla Camden, Parkersburg, W. Va.

An Appeal for More Members of the Medical Officers Reserve Corps U. S. Army.

When it is necessary to increase our regular Army forces, the United States Army will require a large number of medical officers to carry on the necessary work of examining recruits, as officers of volunteer regiments to be formed, as officers of ambulance companies, base hospitals, etc. The members of the regular Medical Corps of the Army, on account of their small number, will all be required for instructive and sanitary work, for which their long training has fitted them, so that it will be necessary to call on the members of the medical profession of New York and all over the United States to help.

A Board of Officers of the Medical Officers' Reserve Corps of the United States Army will be in session at the New York Academy of Medicine, 17 West 43rd Street, every week day except Saturday, from 3 to 5 p. m., to examine candidates for appointment in the Medical Officers' Reserve Corps of the Army and explain the details of the work they may be called upon to do.

Notifiable Diseases.

The growing tendency of manufacturing chemists in presenting to the profession books and brochures containing valuable data, outside of the references made to their particular proprietary remedy, encourages the preservation of this literature on account of the real educational value of the contents.

Under the above title, comes to us a brochure of many pages, issued by the Purdue Frederick Company of 135 Christopher Street, New York, which gives not only those diseases that should be reported to the Board of Health, but with each disease a clinical description, the cause, how transmitted, incubation period, characteristic symptoms, prognosis, durational quarantine, school regulations and disinfection.

It is really a time and labor-saver and if you have not received a copy a card addressed to the above firm will place one in your hands.

An Important Hypnotic.

That often intractable symptom of nervous disorder, insomnia, suggests the use of Chloretone in preference to hynotics of the coal-tar series, for the reason that the former is not depressant to the heart and respiration and is not toxic in ordinary therapeutic doses. It produces peaceful slumber closely resembling the natural process, the patient awakening refreshed and rejuvenated. It does not disturb the digestion, produces no objectionable after-effects, and does not cause habit-formation.

Administered internally, Chloretone passes unchanged into the circulation and is deposited in considerable quantities in the cerebral tissue, the result being that the patient falls into a profound sleep. It appears to be decomposed within the body, for, volatile as it is, we do not find it in the expired air, nor can it be recognized in the urine.

Chloretone is useful in the treatment of the insomnia of acute mania, periodic mania, senile dementia, the motor excitement of general paresis and alcoholism. It is especially beneficial in controlling sleeplessness due to pain—as in cancer, tabes dorsalis and neuralgias—and to mental strain or worry.

As doubtless most physicians know, Chloretone is a product of the laboratories of Parke, Davis & Co. It is supplied in crystal form—in ounce vials and in capsules of three grains and five grains. Because of its camphoraceous flavor it is perhaps best to administer it in capsules.

The Modern Treatment of Wounds.

The remarkable results that have been obtained in the war nospitals of Europe through the use of certain alkaline solutions bid fair to revolutionize our views concerning the treatment of wounds. The day of toxic—and often irritating—antiseptics has passed, and in their place carefully selected alkaline agents hold sway.

It has been found possible to sterilize infected wounds promptly, and this, without the slightest irritation or objectionable effect on the injured tissues. Burnham's Antiseptic Powder has been evolved as a direct outcome of this need. It meets every requirement of this newest conception of the rational treatment of wounds. Remarkably soluble and cleansing, it promptly neutralizes acid conditions, softens and dissolves inspissated secretions, dissolves toxins, destroys bacteria, rapidly allays congestion and inflammation, and promotes tissue healing and repair.

A large number of clinical tests that have been made in the treatment of nose and throat diseases, genito-urinary affections, especially of the bladder and urethra, diseases of the mucuous membranes and wounds generally, point so conclusively to its superiority for gargling, spraying, douching, irrigating and cleansing, to other antiseptic products, that the place of Burnham's Antiseptic Powder has been established. In the treatment of all surgical wounds, use one teaspoonful of the powder to a pint of warm water. This refers especially to use as a nasal douche, as a lotion in eczema and skin affections, in dentistry as a mouth wash, in treatment of burns and skin abrasions. Use in form of a standard solution—a teaspoonful to a pint of warm water. As a vaginal douche, use one or two heaping teaspoonfuls to a quart of warm or hot water. A sample will be sent on request to Burnham Soluble Iodine Company, Auburndale, Mass.

The Pine Sanitarium.

This institution for the treatment of alcoholism and drug addiction is one of the best equipped in the country. Located in the former palatial home of the late Marshall Field, Jr., it combines all the advantages of a home and hospital. The treatment is based on scientific lines and is an exemplification of the latest thought in the medical world.

Dr. Pine, the president of the sanitarium, has prepared a booklet, Alcoholism and Narcotism, which is a carefully prepared story of how these conditions are combatted. It is very well worth reading. We have no doubt Dr. Pine will be glad to send a copy to interested physicians who address him at 1919 Prairie Avenue, Chicago.

An Efficient Antiseptic for Skin Irritation.

The attention of the profession is called to the continued success of Entol in clinical use as a general antiseptic. The formula combines thymol, benzoic acid, boracic acid, zinc chloride, saccharin, glycerin, cologne spirits 10%, cinnamic aldehyde, methyl salicylate and essential oils.

The unusual efficiency of Entol as an antiseptic which destroys the bacteria of infection and promotes the rapid granulation of healthy tissue is due to the fact that after the evaporation of its volatile constituents the surface remains coated with a non-toxic chemical film, which maintains for a prolonged period a bactericidal action of the greatest efficacy. A liberal sample will be gladly sent to all professional men upon request to the company, No. 1009 Columbus Avenue, New York City.

Out of the Surgery of the War Have Arisen New Methods

The Carrel Method

The new principle involved in the Carrel-Dakin wound treatment is the gradual but complete sterilization of a wound by intermittent saturation of the dressings in contact with the injured surfaces by means of the Carrel-Dakin Solution of sodium hypochlorite.

The antiseptic solution, according to the discoverer's methods, can only be prepared with difficulty and in the presence of exceptional facilities.

To meet the demand of hospitals who desire to use this method of wound treatment, Johnson & Johnson have prepared the ingredients in the form of powder in sealed glass tubes. There are two tubes, one containing assayed chlorinated lime, the other sodium carbonate and bicarbonate, dried and granulated.

The contents of the tubes, when dissolved in water as directed, will make the Carrel-Dakin antiseptic solution of definite (assayed) strength and proper reaction.

The solution is applied by the aid of an irrigation apparatus, which we furnish or which may be procured from dealers.

For the present the tubes are supplied only to hospitals direct.

An eight-page illustrated circular, descriptive of methods of use, accompany the tubes or will be sent on request.

The Redintol Method

Redintol is a new dressing for burns, granulations, etc. It is a mixture of paraffine waxes and resins having dissimilar melting points, in a solid brown wax-like cake.

It becomes fluid at about 120° F. and is applied to the tissues at a temperature of about 140° to 150° F. It does not burn the tissues, but relieves the acute pain caused by the burn.

It forms a plastic, elastic, non-adherent dressing under which there is a rapid reformation of new skin, without the usual scarring, with lessened contraction of the skin and tendons. It makes skin grafting unnecessary.

Redintol dressing is easily removed without pain and without tearing the newly formed cells.

Redintol has also been found useful in the treatment of chilblains, frost bites, bruises, excoriations and in conditions of raw, denuded or inflamed areas. It is believed many other uses will be developed when the effects of this compound shall have been fully understood.

Redintol is supplied in one-pound cakes and sold by Druggists and Physicians Supply Houses.

A four-page circular, descriptive of Redintol and its methods of application, will be sent free on request.

Johnson & Johnson

New Brunswick, N. J., U.S.A.

IODIN

that will give Iodin results without the usual Iodin disturbances

ORGANIDIN—WAMPOLE

An Ohio physician reports:

"An infant eighteen months old, had suffered for about five months with what was diagnosed by several physicians as asthma. When he saw the child it was cyanotic and gasping for breath. Organidin was administered in three minim doses every three hours and condition relieved immediately. An uninterrupted recovery followed. Now, after about two months, there is an occasional attack and Organidin is given, completely controlling the case."

Trade-size package mailed to any address postpaid on receipt of $1.00
(1-oz. package, an ordinary three-weeks' treatment)

PREPARED SOLELY BY

HENRY K. WAMPOLE & COMPANY

—INCORPORATED—

MANUFACTURING PHARMACISTS, PHILADELPHIA, U. S. A.

H. V. C.

There is every reason why Hayden's Viburnum Compound continues to enjoy the confidence of some of the leading men in the profession of this country, and why it is the sheet anchor with those who require a reliable and dependable antispasmodic, nervine, sedative or anodyne.

It is introduced exclusively to the medical profession and its acknowledged therapeutic efficiency depends upon viburnum opulus and dioscorea villosa, whose active principles are best presented through the careful selection and scientific compounding of these drugs in combination with simple carminatives.

America's Ampoule Headquarters.

"I am glad that you carry Lilly Ampoules," said a physician to a retail druggist recently. "I always feel confident that if results are to be had from a preparation, I'll be certain of them if the product bears a Lilly label. That's why I prefer Lilly Ampoules."

The use of the ampoule is growing rapidly. The accuracy of dosage, directness of medication and convenience which ampoules afford appeal to the practitioner.

Eli Lilly & Company is said to manufacture the most complete line of ampoules made in this country. This well-known house already has built up a reputation on ampoules that has won for it the sobriquet, "The Ampoule House."

Lilly Ampoules are supplied individually wrapped and labeled in boxes of one-half and one dozen, also in substantial cloth-covered slide cases containing an assortment of ampoules in popular demand. They are supplied through the drug trade.

Sheffield Method of Treating Rabies.

A survey of the statistics of cases of human rabies shows that it is not known how much or how little of the virus when injected may result in the production of rabies in untreated cases. This fact makes it imperative that every patient should be given the full benefit of the doubt, and should receive a course which will confer the highest degree of protection. Such a course is the Lilly Intensive Treatment.

The Eli Lilly & Company Rabies Virus is prepared after Harris' (Dr. D. L. Harris, Professor of Hygiene and Preventive Medicine, St. Louis University, School of Medicine) modification of the Pasteur antirabic preventive treatment. The vaccine virus is a standardized powder, the result of desiccating the pulverized frozen brains and cords of rabbits dead from fixed virus inoculation.

The advantages claimed for this method are its safety; the high immunizing quality of the vaccine; its economy of time and expense to the patient; the availability of the initial doses for prompt administration and the standardization of dosage.

The Lilly Intensive Treatment consists of fourteen doses (one daily) of the emulsified, powdered virus. The vaccine is marketed in syringe containers and is ready for immediate injection by the physician, who may administer the virus in his office or at the home of the patient. The treatment does not deter the patient from his daily routine.

Redintol for Burns.

A number of American surgeons who have returned from France have reported that in one of the French war hospitals wonderful results are being obtained by the use of a secret compound for dressing burns. Dr. William O'Neill Sherman, of Pittsburg, brought some of this compound back to America and the results which he secured have dumbfounded those not familiar with the work in France.

The fact that this mixture is difficult to obtain and that the meagre supplies which have reached the country have sold at such fanciful prices induced numerous surgeons to suggest to Johnson & Johnson that they prepare a compound to take its place.

After weeks of ceaseless experimenting Johnson & Johnson have produced a compound which they call Redintol and which has been successfully demonstrated in several hospitals. This new dressing for burns is briefly described in a page advertisement in this issue of the *Medical Times*. Johnson & Johnson will gladly send further information to any surgeon upon request.

The new method of dressing burn wounds consists of the application of a wax-like substance, in fluid form, to the wound which dressing constitutes a shell or cover, under which there is a rapid reformation of new skin.

Moderate exercise in the open air prolongs life.

The Chronic Case Problem

The advantages of institutional treatment for stomach and intestinal disorders, Neurasthenia, Heart Disease, Diabetes, Obesity, Nephritis, Rheumatism, and other stubborn chronic maladies are worthy of consideration.

A most important advantage is the isolation of the patient from harmful influences, substituting conditions and surroundings that are altogether recuperative and reconstructive. To have the patient constantly under observation for the necessary period of time, is greatly to the advantage of the attending physician.

At Battle Creek, every case receives, first of all, a careful examination. Each patient is submitted to the X-ray and other throughgoing methods of investigation, which can scarcely fail to reveal the true nature and extent of his difficulty.

The diet is carefully supervised by the physicians, assisted by specially trained dietitians. Each prescription is based upon the individual requirements of the patient.

At regular and suitable periods, corrective gymnastic classes are conducted by expert physical directors and here again strict attention is given to the individual needs, as indicated by the general physical examination, which includes a scientific "strength test" of the whole body.

Another special advantage of treatment at Battle Creek is the opportunity for educating and training the patient in health habits by means of which he may, with the aid of his family physician, maintain a high standard of health and efficiency.

Further information concerning any phase of our work will be mailed to physicians upon request.

THE BATTLE CREEK SANITARIUM, Box 335, BATTLE CREEK, MICH.

A NEW BOOK

DEVOTED TO THE APPLICATION OF

BACTERIAL VACCINES

Explaining their therapeutic action—How, When and Where to use them.

By DR. G. H. SHERMAN

Just What the Doctor Needs

to obtain necessary information in this most **efficacious method of treating infectious diseases.**

More rapid strides have been made and more brilliant results obtained in the Field of Therapeutic Immunization than in any other branch of medicine.

This book contains over 500 pages, is cloth bound and sells for $2.50.

Daily Users of Vaccines Use Sherman's

G. H. SHERMAN, M.D., 3334 E. Jefferson Ave., Detroit, Mich.

Equal to Any European Spa.

The European war has made it imposible for Americans to go abroad for hydro-therapeutic treatment. In consequence, the spas of this country will be patronized hereafter more than they have been before, and Americans will be delighted to learn that they can receive the same kind of treatment in this country as they have been used to getting in France, Germany and Austria.

One of the best known spas in America is the French Lick Springs, where the water possesses virtues equal to those of the great Continental spas. In addition to the excellence of the medical attendance, the sojourner at French Lick is certain of delightful hotel surroundings and most pleasant environments. French Lick, in addition to its other attractions, is the home of Pluto Water, where the most improved apparatus is used throughout the bottling plant and every known sanitary precaution has been taken to insure the purity of this famous water.

Pluto Water, well diluted in hot water, acts almost as a true specific in auto-intoxication. It is also admirable in the treatment of uric acid diathesis, and other therapeutically troublesome stages of chronic rheumatism. Samples, clinical data analysis and literature descriptive of the hygienic methods employed in bottling Pluto will be promptly forwarded on application to The French Lick Springs Hotel Company, French Lick, Indiana.

A New Wrinkle in Nasal Medication.

Many believe that in the treatment of coryza, rhinitis, and the like, medication by ointment is superior to that by means of sprayed or atomized fluids. The ointment, especially if the base consist of vaselin, adheres to the membrane for hours, whereas the less tenacious fluid bases quickly run down and out.

But until now the application of the heavy base, except to those portions of the nasal passage which are accessible to the finger, has been attained with difficulty, if at all. Certainly there were no means which the patient might employ himself.

Now comes a little device of simple construction called the V-E-M Applicator, which "shoots" the ointment up into the nose, beyond the hair, a snuff-up sufficing to complete the "operation." Threaded at its side opening to fit the neck of the collapsible tube, the applicator is screwed onto the latter when used. A squeeze of the tube fills the applicator with the ointment, which by sharp, quick pressure on the rubber bulb is then shot up into the nasal passage, first one side and then the other being treated.

It is indeed a slick little device, this V-E-M Applicator, and every physician should become acquainted with it, together with the useful line of ointments with which it is furnished free. Its use very greatly enhances the value and effectiveness of nasal medication. See the advertisement in this issue.

Poliomyelitis.

E. S. Rosenow, Rochester, Minn., E. B. Towne, Boston, and G. W. Wheeler, New York, report the results of their investigations as to the etiology of epidemic poliomyelitis in a preliminary note in the *Journal A. M. A.*, Oct. 21, 1916. They describe the organisms they have found in considerable detail. It is a peculiar streptococcus which they have obtained from throats, tonsils, and the central nervous system in cases of poliomyelitis. It has produced paralysis in animals of various species when injected into the brain substance, and lesions of the gray matter have been demonstrated. From the nervous system of these animals they were able to isolate this coccus in pure culture, but not from their other tissues. It is remarkably polymorphic and seems to grow large or small according to the medium in which it is grown, even after passage through a Berkefeld filter. With the large form of this organism, paralysis has been consistently produced in animals known to be insusceptible to inoculation with material from epidemic poliomyelitis as heretofore practiced. After paralysis has been produced in three rabbits the strain caused characteristic paralysis and lesions of poliomyelitis in monkeys. The authors do not attempt to give definite conclusions as to the relations of the organism to the etiology of poliomyelitis. It seems to them that the small organism which has been generally accepted as the cause may be the form taken by this organism under anaerobic conditions in the central nervous system and culture mediums, while the larger and more typical streptococcic form may be the same organism grown larger under suitable conditions.

When it is a Question not of *how much* food can be taken but what kind of nutrient can be assimilated by starving or exhausted cells—

Liquid Peptonoids

answers every requirement and meets every test, because it supplies the nutrient principles from beef, milk and wheat in sterling form, waste-free and immediately available.

Indicated in any and all conditions in which ordinary food cannot be retained or assimilated.

THE ARLINGTON CHEMICAL CO.
YONKERS, N. Y.

Stanolind
Trade Mark Reg U. S. Pat. Off.
Liquid Paraffin
(Medium Heavy)
Tasteless—Odorless—Colorless

During Pregnancy

STANOLIND Liquid Paraffin is an admirable laxative for use during pregnancy. It produces no irritation of the bowel, has not the slightest disturbing influence upon the uterus, and no effect upon the fetus.

The regular use of Stanolind Liquid Paraffin in the later months of pregnancy is an effective means of avoiding some of the serious dangers attending the parturient state because of sluggish bowel action.

Stanolind Liquid Paraffin counteracts to a definite extent an unfortunate dietetic effect on the intestine in this manner; the concentrated diet of our modern civilized life contains so little indigestible material that the residue is apt to form a pasty mass which tends to adhere to the intestinal wall. Stanolind Liquid Paraffin modifies this food residue, and thus tends to render the mass less adhesive.

Stanolind Liquid Paraffin is mechanical in action, lubricating in effect. Its *suavity* is one of the reasons why increase of dose is never needful after the proper amount is once ascertained.

A trial quantity with informative booklet will be sent on request.

Standard Oil Company
(*Indiana*)
72 West Adams Street
CHICAGO, U. S. A.

73

ABSTERGENT
DEODORANT

ENTOL
TRADE MARK
REG U.S. PAT OFF.

PROPHYLACTIC
ASTRINGENT

ENTOL is a highly antiseptic and agreeable lotion of pronounced efficacy due to Zinc Chloride combined with Thymol, Boracic Acid, Benzoic Acid, Saccharin, Glycerin, Eucalyptol, Alcohol, (Cologne Spirits) 10%, Methyl Salicylate and Essential Oils. You will note that **Entol Does Not Contain Formaldehyde.**

ENTOL is indicated as a gargle and mouth wash in all forms of **Pharyngitis, Laryngitis, Tonsillitis, Gingivitis, and Pyorrhea Alveolaris.**

As a dressing or lotion to bathe the parts afflicted, ENTOL is highly beneficial for **Abrasions of the Skin, Burns, Pruritus, Eczema, Dermatitis** and all forms of skin irritation.

A liberal sample will be sent on request.

ENTOL PRODUCTS CO., Inc., 1009 Columbus Ave., New York

MEDEOL SUPPOSITORIES

Samples on request

You can order MEDEOL Hemorrhoidal Suppositories through your Druggist

An Innocuous, Non-Irritant, Efficient Antiphlogistic for use in all inflammatory diseases of the rectum, anus and vagina, especially in

HEMORRHOIDS

Composition:

Medeol (Bismuth Iodoresorcinate)	0.25 gm.
Zinc Oxid	0 5 gm.
Acid Tannic	0.15 gm.
Balsam Peru	0.16 gm.
Cocoa Butter and Wax q. s. ft. suppos. No. 1.	

MEDEOL COMPANY, Inc., 802 Lexington Ave., New York

For Rectal Disorders.

Hitherto most of the local remedies used in rectal affections have either been too irritating to be employed in sufficient concentration to be efficient, or they have lacked efficiency per se.

In Medeol Suppositories, however, both these disadvantages have been overcome. While being perfectly free from irritant action, they possess marked antiseptic, astringent and anodyne properties, and are without untoward effect of any kind. They soften impacted feces and permit of their comfortable and painless passage; they promptly relieve the itching, pain, burning and bleeding of the hemorrhoids, and in due course relieve the most obstinate cases.

Medeol Suppositories do not contain any narcotic or any caustic or other constituent having violent action; their blandness permits of their use in either sex and at all ages.

Aside from hemorrhoids, Medeol Suppositories have been used with good results in chronic proctitis, ulceration of the rectum, pruritus ani, pruritus vulvae, vaginitis and hypertrophy of the prostate.

For liberal samples address Medeol Company, Inc., 802 Lexington Ave., New York City.

Chronic Constipation of Women.

In the treatment of this condition, what the physician may expect Interol to do is the following:

(1) It keeps the feces from becoming dried and hard. That is, it keeps them soft and plastic; (2) and in addition, by lubricating them, it (3) enables them to squeeze or slip through angulations, convultions and constructions of a crowded gut; (4) at the same time, there is a protective action to any raw or abraded spots.

By doing these things, Interol relieves fecal pressure and gaseous distention, so that the autotoxic as well as nervous symptoms are likely to be reached.

All these it does effectively and harmlessly. Its use does not prevent the adjunctory use of any orthopaedic, surgical or other procedure that may be indicated. On the contrary, Interol itself is more an adjunct to such other measures.

Interol is unquestionably all that it is claimed to be—a valuable "dietetic accessory." There is no other accessory measure that will better accomplish what Interol does accomplish in cases where it can accomplish it.

Dosage is usually a tablespoonful morning and night on an empty stomach, although this varies with the individual peculiarities.*

*Booklet and samples to physicians. Van Horn and Sawtell, 15-17 E. 40th St., New York.

Unsuspected Syphilis.

Evidence as to the surprising prevalence of syphilis is published by J. S. McLester, Birmingham, Ala., from his routine application of the Wassermann test on 300 consecutive patients. The half Wassermann, or an antisheep hemolytic system, was employed, two units of amboceptor and straight alcoholic extracts of both human and beef heart being used as antigens. Of the 300 patients, 56, or 18.8 per cent., gave a positive Wassermann. Twenty-two of these, or 39 per cent., gave a more or less complete history of syphilis, while 34 gave no such history. There were 32 patients who, according to current usage, must be given the diagnosis of neurasthenia, using this word for want of a better in the general rather than the restricted sense. Fifteen of the thirty-two gave a positive Wassermann, but beyond this no other evidence of the disease, and only two of them gave a history of syphilis. Slight myocardial incompetency and early tuberculosis have been given prominence as causes of neurasthenia, while syphilis in this connection has received but scant attention. Unfortunately, the cerebrospinal fluid of only five of these patients was examined. One of these gave a positive Wassermann. These facts raise the question, Are not some of these patients early paretics? This cannot be answered positively, but the other symptoms of paresis were absent. McLester, however, thinks that these so-called neurasthenics with syphilis are probably suffering either from an essentially chronic form of nervous syphilis, or it may be a special type of incipient paresis.

Two conclusions seem warranted from his study: First, that syphilis is a much more important factor in internal medicine than is generally thought; and, second, that a large number of so-called neurasthenics are infected with syphilis and possibly present a mild form of cerebral syphilis.—(*J. A. M. A.*)

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Ringworm on Hands and Feet.

O. S. Ormsby and J. H. Mitchell, Chicago, remark that cases of ringworm occurring on hands and feet are unlike the ordinary skin disease of that type occurring elsewhere, and are examples of what is ordinarily termed dyshidrosis or eczema of the vesicular-vesiculopustular or intertriginous type. What proportion of them is mycotic requires investigation, but the number seems to be large. The essential lesion is probably in all cases a vesicle, solitary or multiple, and grouped or scattered. The contents are usually clear and there is no erythema surrounding it as a rule. In the course of a few days the fluids absorb, leaving a brownish macule, and eventually the roof of the dried vesicle becomes torn and scales off, exposing a red, smooth, shiny surface, with a border of upturned scales. The subsequent course depends on the number of vesicles and their location, and probably also on the type of the invading organism. If the vesicles have been discrete they may leave only slightly scaling areas which may still harbor the organism, and instead of scaling off, the roof of the vesicle may produce a yellowish brown keratotic button containing many mycelial threads, and under which there is little or no trace of the usual shiny red surface. If the vesicles have been grouped, however, they may grow together and even produce bullae. Unmolested these may heal spontaneously, or extend, and if irritated by caustics, cause severe eczematus dermatitis.

The location of the lesion determines largely the condition which the organisms must proliferate, and hence the type of lesion. In all cases observed, the interdigital surface of the fourth interspace of the toes is most commonly affected. Rarely the process extends backward on the plantar surface of the foot. The reason for this localization is that the shoe causes the fifth toe to be constantly flexed and aducted, and finally the last two toes may become so stuck together that cleansing is difficult, and the continuance of the growth is especially favored. The invading organism in most cases is *Epidermophyton inguinale*. They give an analysis of sixty-five cases seen in ordinary private practice, five-sixths of which were in males. The subjective sensations vary from nothing at all to complete incapacity to walk. The treatment consisted of three preparations. In the severer cases a preliminary soothing treatment of naftalan combined with zinc oxid and starch was used, followed by 5 per cent. chrysorobin in a chloroform solution of gutta percha painted on until a good reaction occurred. Ordinarily this last was immediately prescribed, and directions given for use five times a day.

In another series of cases an ointment of salicylic acid and benzoic acid, two and four parts, respectively, in thirty parts of ointment base was used. Chrysorobin was used alone in thirty patients. The authors' conclusions are as follows: "1. Eczematoid and dyshidrotic lesions of the volar surfaces due to mycotic infection are much more common, at least in the Middle West, than the number of reported cases indicate. 2. The disorder occurs more frequently in men than in women, more frequently on the feet than on the hands, and more frequently in the warm and damp than in the cold and dry season. 3. The essential lesion is a deep-seated vesicle, in the roof of which mycelial threads may be found. 4. The areas affected, in the order of frequency, are (*a*) the fourth interspace of the foot, (*b*) the plantar surface of the arch, and (*c*) over the tuberosity of the fifth metatarsus. 5. The disorder frequently follows or precedes eczema marginatum, and is due in many cases to the same organism. 6. The pathogenic fungus may remain dormant in the cutaneous folds of the feet throughout the winter months. With the advent of warm weather an acute attack of vesication, desquamation and maceration may occur.—(*J. A. M. A.*)

Perforation in Typhoid Fever.

In the discussion of this subject, Irving H. Eddy observes that in arriving at a diagnosis, a definite distinction should be made between the symptoms of immediate perforation, and those due to the peritonitis resulting therefrom. The attending physician must ever be on the alert in every case or suspicious case of typhoid to accomplish this distinction, and the nurse or house physician in charge should be instructed to notify him immediately of any change in the symptomatology or condition of the patient. To be able to arrive at the proper conclusion, one must especially have a clear clinical picture before him of acute appendicitis, hemorrhage, ileus, acute intestinal obstruction, acute pelvic infections, acute cholecystitis, and cholelithiasis.

The diagnosis of acute appendicitis in most cases is comparatively easy. Too much stress cannot be emphasized in taking the history of every case offering difficulty in diagnosis. The pain of appendicitis not infrequently beginning in the epigastrium radiating over the entire abdomen, greatly relieved for a time after the stomach has been emptied of its contents by vomiting, followed by localized tenderness and rigidity over McBurney's point; absence of a Widal, and with comparatively little disturbance of the pulse and temperature curve, minus shock, will rule out appendicitis.

The first symptom to appear is a severe griping pain more or less localized, paroxysmal in character. The peristaltic wave can frequently be seen ending abruptly and, if obstruction is incomplete, fluids and flatus may be forced through with a gurgling sound, or if complete, obstinate constipation, nausea, and vomiting are early and distressing symptoms. At first the normal stomach contents are ejected, but soon this is followed by bile, dark fluids, and later, intestinal contents with fæcal odor. The abdomen, at first flaccid, soon becomes tympanitic, the pulse increases rapidly, becomes more or less thready, the temperature may be subnormal and the patient presents the general picture of collapse.

The pain of pelvic lesions is usually more continuous, but not so severe except, perhaps, that of extra-uterine pregnancy. Vomiting is not frequent in these conditions. The not infrequent bilateral condition, the tenderness and rigidity obtained by double palpation, the presence ofttimes of a mass in the pelvis associated with tenderness and rigidity of the vaginal vault, will easily rule out pelvic lesions of an inflammatory character, while if we suspect extra-uterine pregnancy, the early signs of pregnancy, collapse, associated with subnormal temperature, absence of leucocytosis, the presence of uterine hemorrhage and a fluctuating mass in the tubo-ovarian region will be valuable aids.

The not uncommon association of gall-bladder infections and typhoid fever calls for special consideration. A study of the literature shows that perforation is rather infrequent after 40 years, while on the other hand, gall-bladder infections are relatively infrequent before. It is more common in females than males and especially in those who have borne children. The attack is frequently associated with indiscretion in diet, coming on suddenly with severe paroxysmal pain in the epigastrium and right hypochondric regions. Repeated vomiting is the rule and the contents are usually richly bile stained. The abdomen is distended and rigid, but the greatest point of tenderness is usually at the costal margin. The temperature rises while the pulse is comparatively slow, which is an extremely important diagnostic point. A study of the literature demonstrates that perforation of the gall-bladder in typhoid fever does occur and issues a warning sign to be on our guard.—(*Surg., Gyn. and Obst.*, Oct., 1916.)